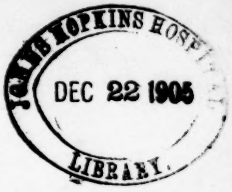
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Original Articles.

OBSTETRICAL NURSING.*

BY A. WORCESTER, M.D., WALTHAM, MASS.

In obstetric practice, at least in normal cases, more depends upon the nurse than upon the obstetrician. And even in the extraordinary cases, however able and faithful the obstetrician may be, unless the nurse is well trained, his patients are very liable to suffer unnecessary discomforts and are also exposed to gravest dangers.

The provision of an adequate supply of properly trained obstetrical nurses is or should be a matter of great interest to obstetricians, and I therefore make no apology in again bringing the subject to your attention.[1] It is true that the responsibility of training nurses is rapidly being assumed by nurses. This is as it should be. But it is also fitting that the scope and character of the education and training required in the different special lines of nursing should be agreed upon and set forth by the physicians and surgeons practicing these specialties. Nor is this so difficult of accomplishment as at first thought it might appear to be. In spite of the varying methods and practices of obstetricians in different schools and in different localities, there is nevertheless a sufficiently substantial unanimity regarding the principles involved, and clearly defined ideals for the education of obstetricians have already been formulated. And so there surely can be no insurmountable obstacle to securing at least equally well defined ideals for the education of the obstetricians' lieutenants.

In attempting to formulate these ideals the main question confronting us is that of the proper functions of the obstetrical nurse. And in order to discuss this question intelligently we must have in mind the different stages already attained in her evolution.

When the Pilgrims were sojourning in Amsterdam before their departure for the new world they engaged a deaconess midwife "to serve diligently the sick and the weak, especially the women according to their needs." I have not yet been able to find out if this important personage crossed the ocean with them. But it is certain that among both the Pilgrims and the Puritans the obstetric art for nearly two centuries was practised only by midwives. In this as in many other ways the old English customs survived in New England long after their disappearance in the former homes of our race. You may remember the story of Dr. Boylston, who in the eighteenth century came back from Europe to Salem a trained obstetrician, only to wait ten years before he was allowed a single opportunity to deliver a woman. On the island of Nantucket my great grandmother was one of the first to venture to employ a physician's help in her labors. But in the early years of the last century, after her example had been generally followed and most of the children so helped into the world were swept away by an epidemic of "putrid sore throat," it was held to be a visitation of God's wrath because of the shamelessness of their mothers. For a long time afterwards no woman on the island dared to employ an obstetrician.

In the larger towns there were midwives in these early days, but in the country until within recent years it was the custom for the woman in labor to depend upon the help of neighboring women. And in every community there were some who were held to be especially skilled in giving the needed assistance. My own mother during her lifetime, besides giving birth herself to twelve children, had given neighborly aid at nearly one hundred births. On many of these occasions no physician was present. There were no telephones or automobiles in those days. And unless the labors were delayed and difficult the chances were large against the physician's attendance at the crisis. Such was the predicament when I myself arrived. I now understand what our old washerwoman used to say when as a mischievous boy I splashed the suds at her — "And me that spanked the life into you, you brat, and I'm damned sorry I ever did."

Out of this neighborly volunteer service, which now has for the most part disappeared, there grew the custom of employing regularly monthly nurses, women generally well past middle age, widows often or staid spinsters who by accident rather than by design had acquired more or less experience in such service. In them was gathered the traditions and experiences of former generations, much of it wrong, but some of it not to be despised. Many of these old-timers are still in harness. In many of our New England towns no other nurses are available. Very fortunately for the families of moderate means, who never can afford the luxury of modern trained nurses, there is still a continuous supply of these women helpers. And owing no doubt to the change of opinion regarding the proper age qualification of nurses, young women nowadays take up this trade of monthly nursing. Prevented by one reason or another from taking regular professional training, and attracted by higher wages than can be otherwise earned, they soon pick up the trade. Often they give excellent service not only in nursing the mother and baby, but in doing the housework as well.

Most of the obstetrical nursing in New England is still done by these untrained nurses. And much might be done to improve the character of their service with very little effort or expenditure. Of this possibility I shall speak later on. But I want now to speak of the midwives. There have never been many of them in this country. And now, except among our foreign-born population, they have almost no practice. No school for midwives, so far as I am aware, has ever made headway on this side the ocean. The practice of midwifery once assumed by the physicians has remained for a century in their hands. And only

*Read at a meeting of the Obstetrical Society of Boston, Oct. 20, 1903.

[1] Vide Reports of Obstet. Soc. of Boston, in Boston Med. and Surg. Jour., May 3, 1894, and Dec. 1, 1898.

lately, and even now only in the larger cities, have any physicians ventured to refuse such practice.

It would be profitless to lament any such well-marked tendency in the evolution of our civilization. And yet in contemplating the elimination of the midwife it is well worth our while to consider if no advantages have been so sacrificed. For certain it is that the medical profession is responsible for the midwife's disappearance. Without help from medical societies and institutions the midwife cannot obtain her necessary education, and without the co-operation of medical practitioners she cannot succeed in practice.

It would be very pleasant to believe that the failure to provide such education and to offer such co-operation has been wholly due to the belief that modern science requires in the practice of midwifery a full medical education. But is it not too possible that physicians have preempted this field of service in order more quickly to gain large and remunerative family practice, and have not many men who really hated midwifery undertaken it simply for this purpose? We must admit that the well-trained midwives on the other side of the ocean still give excellent service, and that the honor of many of the improvements in the art belongs to them. Granting all that can be claimed regarding the necessity for the greater skill and strength and higher education of surgical obstetricians in abnormal and complicated cases of childbirth, it may well be questioned if in the conduct of normal and natural labors the midwife does not give equally good service. The midwife certainly gives more time than the physician can who has besides to meet the demands of his general practice. She can well afford to charge for the case much less, and she also saves the family from much of the expense for the nursing needed where a physician is the accoucheur. Moreover, there is intrinsic fitness in woman's service to woman's needs. No one would probably advocate or desire any return to the old-fashioned notions of the indelicacy, if not the indecency, of women's having men's help, even where such help alone can save their health and lives. But we are considering cases where women helpers could serve just as well. And in absolutely normal cases of childbirth it is at least possible that sisters can serve their sisters better than brothers can. They might not prepare so extensively for all possible emergencies; and so they might not impress their importance upon terrified families and thus prepare them for a tremendous bill of expense. Where there is unlimited wealth for only a single heir of course no one would think of employing a midwife, but in families where the children come faster than the dollars, and where the poor mother needs little help in her labor but much in her household, the midwife fits in admirably. But the midwife, useful as she was and still might be, has forever lost her place in the onward march of our race. And it remains for us only to make sure that no advantage that belonged to her service shall be lost. To this part of our subject we shall return.

We have now brought into passing view three kinds of obstetrical nurses, the neighborly helpers, the regular untrained monthly nurses and the midwives. By far the larger part of the obstetrical nursing of this country is still done by these kinds of nurses. In the cities, especially among the foreign born, the midwife still holds sway. As has lately been brought to our attention by Dr. J. G. Blake, there is great need of some official regulation of the midwife's service. But with no opportunity offered for her education it will be difficult for the state to insist upon any educational requirements for giving her a license.

In the towns the untrained nurses occupy the field. They are improving in their methods and in their efficiency. But much more might be done for their improvement.

In the sparsely settled country women in childbirth still depend upon the nursing that kindly neighbors can give them. Without any scientific knowledge, and with only stray bits of information to guide them, these good-hearted helpers do surprisingly well. One cannot help regretting the disappearance of this neighbor nursing. No amount of education in the obstetrical nurse can ever make up for the lack of true neighborly kindness. But there is no necessity for such loss, if its importance is insisted upon in the training of our modern nurses, whose service in obstetrical nursing we have now to consider.

Many of us remember the brave beginning in this country, made a third of a century ago at the New England Hospital for Women and Children, in training nurses. To that hospital belongs the honor of having given the first American diploma of nursing to one [2] who afterwards proved her worth as the first superintendent of the Massachusetts General Hospital and the Boston City Hospital training schools, and of at least a dozen others. Nurses of course had been trained previously in all hospitals since their foundation, but only for the advantage of the hospitals. It was a distinctly forward step when systematic training was offered to women looking to their greater usefulness in the community afterwards. But not until recently has it been considered necessary in the hospital training schools to offer anything more than the opportunities afforded by experience. I myself have the honor of having given the first class instruction in obstetrical nursing to student nurses at the Boston Lying-in Hospital in the summer of 1883. Since then the improvement in the training given in the different schools as well as the number of training schools has made great headway. It would be beyond the limits of my present purpose even to recount these advances. But it would be easier to leave out of consideration the general hospital training schools where perhaps the course includes a lecture or two upon midwifery, were it not for the fact that many of the graduates of these schools, relying upon their knowledge of nursing fevers and fractures, have presumed to offer themselves as trained nurses in obstetrical cases. Such nurses have done much

[2] Miss Linda Richards.

to retard the acceptance by physicians and families of the great advantages of trained nurses in such service. And yet the supply of obstetrical nurses who have been properly trained is still so small that any interference with the growth of the demand for their services may be overlooked.

Within very recent years, however, the leaders of the large hospital training schools have begun to recognize the obligation of giving to their student nurses regular instruction and practice in obstetrical nursing. To this end most serviceable relations have been established between the general and the maternity hospitals whereby student nurses in the one have periods of service in the other. And the time probably is not far distant when every school that pretends to offer a thorough education in nursing will include arrangements for such service.

The schools connected with small hospitals, on the other hand, although not yet recognized at their real worth, have always included obstetrical nursing in the course of training given. Such schools are rapidly increasing in number and in importance. Many of them are striving in every way to follow educational ideals, and they welcome any suggestions regarding their improvement. The times are therefore ripe for the establishment by obstetricians of standards for the education of obstetrical nurses. Upon this subject, in offering the following propositions, I invite discussion:

In the first place I trust that it may be agreed that a general training is prerequisite. Specialists in the practice of medicine are all very well; if complications arise other specialists can be brought in. But even specialists in medicine must have had a general medical education, and it is all the better for their patients if they have had some general practice besides. But in nursing service it is no such easy matter to secure different nurses as complications arise. And in any case of midwifery, knowledge of the nursing required in fevers and in surgical operations may be as needful as knowledge of obstetrical nursing.

In the next place, as regards the scope and character of the education required in obstetrics, I can hardly hope for equally general agreement to my proposition that the obstetrical nurse should have at least as much as is provided for midwives in their best schools. It may be feared by some that such training would make midwives. Not at all. No student nurse of to-day could possibly be induced to undertake the practice of midwifery. The higher her education the less willing she would be to undertake such responsibility. The whole trend of modern nursing is against such a course, and in its professional advance the foundation principle becomes more and more clear that the nurse is the physician's executive officer. It is her duty and her delight not to interpret the symptoms but to observe and record them, not to decide upon the course of treatment that shall be pursued but to carry out the orders. And yet in midwifery work one can never be sure that the obstetrician will be at hand as emergencies occur which require instant action, or even at the crisis of delivery. Moreover, the well-trained obstetrical nurse is often employed simply as a guard against these contigencies in families where the luxury of the constant attendance of an obstetrician during much of the pregnancy and all of the confinement cannot be afforded. There surely can never be found valid reasons for limiting the amount of obstetrical knowledge of the nurse. The more she has the better. Those who harbor such dread of education in nurses have probably had experience not with the really well educated but only with the poorly trained, whose ignorance accounts for their intolerable officiousness.

Before asking assent to my proposition that the obstetrical nurse should have at least as much education as is furnished in the schools for midwives, I ought first to explain what that education is. It will be sufficient perhaps to quote some of the questions asked in the examinations held by the Obstetrical Society of London before granting their certificate that the candidate is in their opinion "a skilled midwife competent to attend natural labor":

(1) "Describe the passage of the fetus through the pelvis with the face presenting and the chin to the right, and say how you would diagnose the presentation, and in what cases you would send for medical assistance.

(2) "Give mechanism of labor in breech presentation with the left buttock backwards and to the left.

(3) "How would you manage a twin labor?

(4) "Describe the natural appearances of a child's motions during the first week of life. What unnatural appearances are the most usual and what do they show?

(5) "Give the causes and treatment of retained placenta.

(6) "What is the difference between unavoidable and accidental hemorrhage? What would be your treatment in each case?"

If these sample questions seem to imply an impossible standard of education for obstetrical nurses, I can offer my own experience in having fitted a student nurse to pass with honor the examination from which the above questions are quoted.

It may be questioned why nurses need be taught how to conduct a normal labor when it is intended that such responsibility shall always as far as possible be avoided by them. This question forces upon us the consideration of the proper functions of obstetrical nurses. Disagreement is now inevitable. Nevertheless, we must try to reach some agreement in the hope that out of our discussion some progress will be made. And at any rate it behooves those who have definite ideas upon the subject to state them.

I myself believe that the obstetrical nurse should be expected to visit her pregnant patient occasionally, to advise her about all the preparations for her expected confinement, including the baby's wardrobe, and to listen carefully to all her woes and complaints, informing the obstetrician

from time to time of the exact condition of his future patient.

Against this idea of the nurse's function some physicians may believe that these duties belong to them. If the physician prefers to give this sisterly service, let him give it; that should not prevent other physicians having nurses' help in such business.

As the time of the expected labor draws near I believe the nurse should be expected to make sure that the patient is in normal condition, and to report to the physician any deviations from the normal. It is as easy and proper for the nurse as it is for the physician to make sure of the proper action of the kidneys, for instance; nor will a properly trained nurse be any more likely to frighten the patient in so doing.

When labor actually begins it is the nurse's function to decide and report that fact; and during the first stage of the labor it is her function to keep watch of its progress, to give assurance that the conditions are normal, and to report to the physician accurately. During the second and third stages of the labor, in event of the physician's absence, the nurse should be able to manage the natural delivery. She should be able to recognize dangerous complications in order that other medical aid may be secured while waiting for the expected physician. In sudden emergencies she should be able to apply the immediate appropriate treatment.

With the help of such nurses the obstetrician's work is made easy. His knowledge and skill and strength can then be far better employed than when, without such nursing service, he has to dally in the lying-in chamber for days at a time or else keep making unnecessary visits in order to be at hand later on when really needed. But it is not merely for the obstetrician's convenience that such nursing ability is advocated. For the patient herself it is in every way an advantage. During the first stage of the labor, for instance, no physician, unless perchance he is himself a nurse in male attire, can so well as the nurse give the needed service; he is only in the way. Furthermore, for busy practitioners such employment of their time is wholly impracticable. Regarding the function of the obstetrical nurse in the confinement period, there is so much less chance for disagreement that nothing need be said beyond calling attention to the great importance both to mother and child of intelligent and devoted nursing service.

To recapitulate, obstetrical nurses should be expected to exercise precautionary surveillance during the pregnancy, to manage the first stage of labor, to recognize any abnormal occurrence, to be able to conduct a normal labor, to apply appropriate preliminary treatment in emergencies, and in the confinement to care for both mother and baby intelligently.

If these are admitted to be her proper functions, there can be no question as to the kind of education needed by the obstetrical nurse. But this is far from all that should be provided for in the ideal education of obstetrical nurses. Important as it is to include this technical knowledge of midwifery, it is equally important in supplanting the old time neighborly helpers and the untrained nurses to preserve all the advantages belonging to their services. The nurses of the future must therefore be taught how to fit in most helpfully in homes where the mother is under temporary eclipse. To this, my third proposition, I am sure all will agree. The nurse must be taught how to utilize all sorts of make-shift material, how to save every unnecessary expense and how to make the family and even the servants her friends, thankful for her having come into the household.

It is needless to say that these all-important lessons can be neither taught nor learned in hospital wards, where the mother with her newborn baby is merely one in a long row, unnamed and unknown except perhaps for some interesting physical abnormality. How can it ever be expected that a nurse whose only training has been in the wards should know anything about home nursing? She has never had anxious husbands and terrified little children and cranky servants to deal with. Very likely she has never even seen the mother's joyous welcome of her child. So she does her utmost to change the home into a hospital, she delights in a large display of paraphernalia, she establishes rigorous rules for visitors and graciously allows the father and little brothers and sisters one at a time to see the baby for a few minutes after the fifth day. In short, the modern hospital-trained obstetrical nurse too often does everything she possibly can to magnify and distort the normal process of childbearing into an unnatural, extraordinary experience. But she is not to blame for so doing, as she is merely following most conscientiously the wrong teaching she has received. Of course it often is possible for her to learn better ways, but the nurse whose only obstetrical training has been in hospital wards will always be at a disadvantage in comparison with the obstetrical nurse who has been trained in home nursing.

In the maternity hospitals and in the out-patient midwifery service the education of medical students naturally enough is of first importance, and nurses, however well trained as assistants of medical students, cannot be expected to have acquired a proper education. The schools of nursing must provide courses of instruction in obstetrics, and clinical practice under capable teachers, where the education of the nurse is the matter of first and not of secondary importance. In the immediate neighborhood of the medical schools it may not seem easy to arrange such educational opportunities for nurses; but even in such cities there is no lack of midwifery cases where medical students would not be admitted, but where the services of student nurses would be a blessing both to the families and to the physicians in charge.

All that is wanting is the organization of proper courses in obstetrical nursing by the regular training schools. The class work and preliminary drill, including practice upon the manikin and

upon the living model, can be easily provided for at the school. And opportunities for clinical practice can be arranged for in connection with the visiting nursing societies which are now to be found in almost every village and town. These societies would gladly undertake more visiting midwifery work could they afford to do so. Now while under the necessity of hiring graduate nurses for this purpose it is not possible for them to comply with the demand. But with student nurse service available many of these visiting nursing associations could well afford to employ a superintendent nurse competent to teach obstetrical nursing. She might well be one of the faculty of the school supplying the nurses, and so the school might maintain full control over the squads of student nurses sent out on this service.

Such an arrangement as this would afford many great advantages. In the first place the needs would be met of the very poor women and of those who can pay only small fees for nursing service. Again, better methods of helping women in childbirth and in confinements would pervade the community; the untrained nurses who now supply this field, if their co-operation is as cordially welcomed as it should be, would soon learn the new and safer ways. And finally under such an arrangement the best possible opportunities would be provided for the education of obstetrical nurses.

ON SOME QUESTIONS RELATIVE TO EXTRA-UTERINE PREGNANCY, WITH ESPECIAL REFERENCE TO TUBAL ABORTION.*

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I HAVE been led to prepare this paper by the hope that discussion may throw some light upon certain questions relative to the diagnosis, treatment and after history of this condition that are at present by no means entirely settled in my own mind.

(1) *Diagnosis*, the classical symptoms — amenorrhea, followed by more or less continued irregular flowings, sudden and severe typical pain, usually described as "colicky," expulsion of decidual tissue and the presence of an ill-defined pelvic tumor distinct from a uterus that is not enlarged enough to correspond with the putative duration of pregnancy, combined with anemia and the symptoms suggestive of pregnancy — would if present give are asonable certainty to the diagnosis of a ruptured tube. In my experience, however, the great trouble has been that most of these symptoms are generally absent and especially so in cases of tubal abortion (*i. e.*, discharge of the fetus through the osteum abdominale without rupture of the tube), while in the cases of the rupture of more advanced tubal gestations the patient is very apt to be first seen in a state of collapse too profound to admit much questioning as to symptoms.

I have operated upon seventeen cases of extrauterine pregnancy and diagnosed correctly quite a number more that I had to send to other men for operation. Needless to say, in several of my cases the correct diagnosis was not made until the abdomen was opened. In all these I can recall very few in which even a majority of the classical symptoms were present. On the other hand, I can remember a sufficiently large number of cases having most of the classical symptoms in which a laparotomy showed other conditions.

Take for instance the case of C. H. Married some years, no children. Seen at the end of August. She had passed the period due April 2, began flowing June 13 and had flowed steadily ever since with occasionally more profuse discharge for a day or two. She had had chills and hot flashes and on several occasions severe stabbing pains in the groins lasting an hour or two. Some tissue was said to have come away. Symptoms of pregnancy present. A rather fat woman, she was first seen by me on the operating table. Previously another gentleman had passed a sound and declared the uterus empty and had felt a mass behind it. Overhastily accepting the diagnosis of extrauterine already made for me, although very probably I should have concurred no matter how carefully I had examined, I opened the abdomen and had the pleasure of coming upon a pregnant uterus, from which, returning to the vagina, I delivered a four months' dead fetus. The mass behind the uterus turned out to be two patches of exudate, each the size of one's hand, in the lower posterior segment of the uterus and the right broad ligament. Humiliating as this mistake was, — and it occurred before a large number of spectators, — I got what little consolation I could from the fact that three confrères were equally at fault. The obvious lesson is the necessity of a careful examination under ether just before the operation, which reminds me of a laparotomy for extrauterine pregnancy I was once invited to see by a leading New York operator which revealed nothing, not even a pregnant uterus. Some symptoms and a mass of feces had led him astray when he examined ten days before the operation, and he did not confirm his diagnosis under ether.

Another case of mine, Mrs. L., had this history: Amenorrhea for three months. After "feeling herself pregnant," as women say, some three weeks before I saw her she was awakened from sleep by pain in the lower abdomen so severe that she rolled on the floor in agony. (I remember that one of my earliest medical impressions was that "rolling on the floor in agony" meant in a man an appendix and in a woman a ruptured extrauterine.) This pain was accompanied by nausea. It lasted half an hour and for a few days thereafter she was very pale and fainted easily, then she began to flow a little and was still flowing when seen. The uterus was found to correspond with three months' pregnancy and there was a distinct boggy mass behind it. In three weeks more this mass had gradually dis-

* Read at a meeting of the Obstetrical Society of Boston, Oct. 20, 1903.

appeared, leaving a normal pregnancy. Of course it is possible that here was a normal pregnancy combined with extrauterine with tubal abortion. Such combined cases have recently been reported at the Obstetrical Society by Drs. Perkins and Elliot, but the chances are against it.

Or take this case to illustrate the possibility of a faulty diagnosis. Mrs. H. consulted me for a secondary sterility of four years' duration. After a few weeks' treatment of an endometritis she skipped a period. At the sixth and eighth weeks there was flowing for a few days with sharp pain in the groins. Seeing her at the eighth week, an oval movable tumor the size of a hen's egg was to be felt in Douglas' pouch with hardly any appreciable enlargement of the uterus. While a few more days' observation settled it that it was a normal pregnancy with a catarrhal tube, there was a time when I felt tempted to interfere.

Or take this case seen in consultation. Amenorrhea five weeks, then fairly sharp pain in the left ovarian region, followed for a week by the discharge daily of a small amount of old clot, culminating with fairly active expulsive pains and escape of fresh blood. The uterus was then curetted. The pathologist reported that while there was evidence of a pregnancy there was no trace of an ovum and that he could not but be suspicious from the specimens submitted that there was something going on outside of the uterus. Three weeks later there appeared in the left pelvis an oblong mass the size of a small orange and for twenty-four hours there were rythmical wave-like pains in the left pelvis, almost exactly like the pains one sometimes sees that are premonitory of the rupture of a tube. An exploratory laparotomy showed nothing but a small thin-walled rapidly growing cyst of the ovary.

Sometimes, on the other hand, when an extrauterine pregnancy is actually present, there are practically no symptoms of it or if any are present they are so slight that the case is naturally regarded as one of ordinary miscarriage. Three of my cases came to the hospital to be curetted after a so-called miscarriage, in one of them the plainly felt hematocele being regarded as a pelvic abscess by a leading gynecologist. In another the diagnosis was made by the merest accident. Miss H. (Case VIII). My house-officer telephoned me that a girl had just come in who had been flowing for a month after a miscarriage at five weeks. I told him to curette her and when I saw her next day she was doing perfectly well, so I gave her no more thought. On the day before she was to leave the hospital the house-officer told me that as she had been flowing a little more he had had the curiosity to examine her again and had felt something behind the uterus. Careful inquiry gave no history of pain or anything else except a slight flow for a month after being previously perfectly regular. I at once opened the abdomen and found it full of free blood and clots and a sac the size of a hen's egg in one tube with a rupture with old edges, though free bleeding took place on handling it, and a pelvic peritonitis apparently at least a month old.

Pelvic examination is not always of great assistance or is deceptive. Take this case: Mrs. D. (Case XII). Six weeks previously sudden severe abdominal pain, menstruation having occurred at its normal time a few days before. This was accompanied by nausea, without vomiting (present, by the way, at the time of rupture in over half of my cases); this pain lasted five minutes, leaving the patient prostrated. Two weeks later another attack with flowing for an hour. Three days later another similar attack. She was then examined by a gentleman with great experience in extrauterine pregnancy who inclined against that diagnosis as he could feel absolutely nothing and thought the case might be one of appendicitis. A week later, when under observation in the hospital, she had another attack. No tissue was passed as far as known. From the history I advised an operation. Examination under ether shows a plain enlargement of the right tube, while the left pelvis was apparently free, yet when the abdomen was open I found she had an extrauterine pregnancy on the left side — the mass on the right being only a hydrosalpinx. Even after this left tube was removed it was difficult with one's eyes shut to feel the fusiform swelling in it, which was filled with soft clot. A peritonitis had closed the distal end of the tube. A microscopic examination proved tubal pregnancy present. This condition of tubal pregnancy with closed tubes is not so very uncommon. Dr. C. H. Hare has recently reported a case of extrauterine pregnancy with double pyosalpinx. It is noteworthy that the rupture of this sac — not the tube — in the earliest days of pregnancy caused such marked and persistent symptoms, especially as the tube was not at all tightly filled with the escaped blood. This brings out another point. Some time ago, in a suspicious case at eight weeks, a physician expostulated to me that it was too early for rupture or indeed for any symptoms of an extrauterine pregnancy and I believe there is a somewhat general feeling to this effect. Leaving out the pain from the stretching of the tube which sometimes occurs very early, the dates at which rupture or tubal abortion took place in my cases was approximately as follows — sixth week, eighth, third (sac only 3 mm. long yet the abdomen full of blood), fourth, third, fourteenth, fourth, eighth, sixth, eighth, sixth, eighth. Thus in 10 of the 14 cases of which I have the data, symptoms were noticed at or before the eighth week. These figures are in close accord with those of Weindler,[1] in which 19 of 50 cases were in the first month. Cases in which symptoms occur thus early are generally tubal abortions, in which the pelvis is found filled with adherent blood clots with an enlargement very likely no larger than an almond in the tube. In several such cases I have still found blood coming drop by drop from the abdominal end of the tube, cases in which the tube had been lifted up carefully enough to exclude the hemorrhage being caused by manipulations. It is to be remembered that a very large amount of blood

[1] Arch. f. Gyn., 1900, Bd. lxi, Hft. 3.

can escape by this monotonous drop, drop, drop; fifteen drops a minute, the rate in one of my cases, gives much more than a quart a day and this hemorrhage tends to be persistent rather than otherwise unless the end of the tube gets blocked up by a peritonitis. From Weindler's study it seems evident that the menstrual period following a tubal abortion in the first month is very apt to be much more profuse than ordinary, a point worth bearing in mind in trying to explain the cause of certain cases of pelvic peritonitis in which there is a history of a single profuse menstruation without previous amenorrhea in women who usually flow a normal amount.

In these cases of early tubal abortion no trace of the fetus is likely to be found and the diagnosis can be confirmed only by the microscope, if even by that.

Should tubal abortion be deferred one can generally get a history of amenorrhea, but not always. Take this case: Mrs. C. (Case I). I found in her abdomen a fresh fetus of three and one-half months, three weeks after her first attack of pain; she had not skipped a single period she said and thought. In reality her irregular flowing due to her extrauterine pregnancy had happened to coincide in time and amount approximately with her normal menstrual flow, a possibility to be closely borne in mind in women with a history of more or less irregular menstruation.

As to the classical symptom of grave anemia, in my limited experience this is the exception.

Of my 17 cases 3 were in collapse from acute hemorrhage. In 8 free blood was present in the abdominal cavity without marked anemia. In 5 the pelvis was more or less filled with clots without free blood or any anemia. In one case who had been having symptoms for a week I found the abdomen more filled with blood and clots than in any other case I ever saw, yet her color was good and her pulse only 80 before the operation. I suppose the hemorrhage, though profuse, had been slow enough to allow new blood to be formed as fast as it leaked through the mouth of the tube. In this case the fetus was just about large enough to be seen, yet the total amount of blood lost was very large.

Another classical symptom is the escape of decidual tissue. I have come to place no reliance on this unless it is proved by the microscope. Women are more than apt to regard old blood clots as "tissue," or else when the real tissue does escape it is apt to be regarded as merely blood clot.

I suppose extrauterine pregnancies have been mistaken for almost every conceivable pathological condition in the pelvis and the abdomen too, for that matter, and vice versa, and no wonder, for a sure diagnosis is often impossible. Tubal abortions are especially difficult to diagnose, particularly those in which the hemorrhage is into a tube the distal end of which has become occluded. This is unfortunate, as tubal abortions are perhaps more frequent than cases in which the tube itself ruptures. They formed 56% of my cases.

The symptoms which seem to me of chief importance in tubal aborton are pain and anomalous escape of blood from the uterus. *Pain.* It is quite different from that of ordinary menstruation, short-lived, often stabbing and not "colicky" especially, nor anything like as severe as the agony from the rupture of a tube. This pain is often accompanied by nausea without vomiting and as a rule more or less protracted *metrorrhagia* takes place. Patients are apt not to pay much attention to this pain and think that the flow is due to only a miscarriage, and so first come under observation some weeks later, being led to seek advice on account of the pain from the pelvic peritonitis that generally results. As the abortion occurs when the enlargement of the tube can hardly be felt, and the fetus generally dies at the time of rupture of the sac, all that can be felt is often only a more or less firmly organized blood clot surrounded by exudate and exquisitely sensitive. A few times, in cases of tubal abortion, I have got dullness in the flanks from free blood, but generally the hemorrhage is small, though often persistent, and the blood is all collected in the pelvis and clotted.

The further advanced an ectopic pregnancy is the easier the diagnosis naturally becomes. If three or four months along and the patient is fortunate enough to be examined before rupture, a history such as I have outlined associated with the symptoms of pregnancy, and the presence of a pelvic tumor combined with relatively slight enlargement of the uterus, should attract the attention of the least suspicious, and fortunately the irregular flowing and the pain due to the stretching of the tube are very apt to make a woman think that if she is pregnant something must be wrong.

One little point in diagnosis is worth mentioning. It used to be taught that ectopic pregnancies are far more apt to occur in multiparæ after a protracted secondary sterility. This is not always strikingly so; 41% of my cases were primiparæ.

As to *treatment* there are five questions that have occurred to me and it is with the hope of eliciting a discussion of them that I have been led to prepare this paper:

1. Should a case seen immediately after rupture — in collapse and acute and profound anemia — be operated upon at once, running the risk of operative shock proving the last straw in the scales of life and death, or should we wait until the patient has rallied somewhat from the shock of rupture, aided by strychnia or alcohol and salt infusion and more especially adrenalin?

I recognize that the waiting policy has very able advocates who have had greater experience than I have. One must resist the temptation to dogmatize, but personally I feel that I should prefer to operate at once, no matter how grave the condition, or rather, the graver the condition the more prompt would be my attempt to reach the bleeding point, for while twelve hours or so *may* give a patient some hope of recovery from the primary shock, we have no certainty but that

meanwhile blood may be coming out of the torn tube quite as rapidly as we can introduce salt solution under the breasts — nay, even our efforts to increase the volume of blood in circulation are very likely only increasing the quantity available for pumping out into the abdominal cavity and at the same time replacing the lost blood with a fluid of low coagulability. In a recent discussion on this matter an eminent gentleman said it was his experience that cases of accident operated upon in a condition of shock generally died. This is, of course, true and nobody would dream of operating on a recent tubal rupture if — and the whole point of the matter lies in that " if " — if we could be sure that there was meanwhile no hemorrhage going on into the abdominal cavity. I always understood it was a primary surgical rule to find your bleeding point and then wait if thought best. Common experience shows how marvelously patients recover after bleeding has once stopped. One advocate of the waiting treatment expresses scepticism as to women bleeding to death from the rupture of a tube, saying that the hemorrhage will stop of itself when the woman is sufficiently exsanguinated. Within six months I have heard of four cases of death from such acute hemorrhage occurring within a few miles of Boston. As to the shock of an operation taking away the woman's one chance, I do not think its risk is comparable with the risk that she will bleed to death. It is well enough in a grave case to say " wait, and if she loses ground we will then operate," but if you do so, when that ground is lost her chances have not improved any. As to the argument that one does not like to operate upon a dying woman, I cannot but feel that to let her die without an attempt to relieve her does not bring any great glory to surgery. My rule is to get ready for operation, stimulating the patient meanwhile. If she reacts and holds her own, wait, but at the first sign of losing ground operate. If no reaction, operate and give her her one chance.

Three only of my cases were in collapse when operated upon. One of the two that I lost, Hennesey (Case VI), was thought to be dead in the carriage on the way to the hospital. She responded a very little to stimulation at first, but by the time I could reach her she had begun to fail again and was almost pulseless when the ether was started. She was dead an hour after the twenty-minute operation was completed. She lost no blood from the operation and there was very little handling of the intestines. Bleeding from the torn tube was steady and free, considering how exsanguinated she was. As death from acute anemia was otherwise inevitable in the near future, I feel that reaching the bleeding point gave her her one chance in a thousand and have never regretted that I opened her abdomen.

The other fatal case was a primipara, seen in consultation with Dr. Boland, two hours after the rupture at six weeks. Within an hour of the time she was seen I opened her abdomen at the Carney Hospital, and found it full of blood with free hemorrhage going on. She died on the third day, apparently from exhaustion. I afterwards found that she had been having attacks of heart failure for some months, and it was one of these combined with the profound anemia that caused her death. She was in a state of fairly deep shock when operated upon and was growing worse all the time. To sit still and wait for reaction in such a case seems to me sacrificing most of one's chances.

The third case operated upon in collapse (Case IX) seemed in quite as bad condition as the first, and coming within a week of it gave me a good chance to compare the two. In my notes I read " seems much better after the operation, as now a faint flutter can sometimes be obtained at the wrist." She certainly seemed a pretty hopeless case, yet she did perfectly well, the pulse dropping to 140 within twelve hours. Bleeding was found to be going on freely from a vessel large enough to have practically filled the abdomen in the three hours between rupture and the operation and I think by the time the vessel was tied she had lost about all the blood she could afford. With a case like this in mind, I confess to a good deal of scepticism about waiting for a woman to recover from shock if meanwhile she is going to bleed to death. I do not deny that when a woman is not blanched and percussion does not reveal much free blood it may not be well to give her a chance to react before interfering, but I do wish to protest against sitting with folded hands with a patient showing evidences of acute anemia.

2. The second question that occurs to me is — with a diagnosis of probable unruptured extra-uterine pregnancy is it better to operate at once or wait until the diagnosis is certain? I should feel that a reasonable probability implies an immediate operation. Certainty generally comes only with rupture, which is often not considerate enough to give much warning. One of my worst cases, who was being "watched" by another man, was awakened from sleep by the rupture and came very near dying before she could be operated upon.

3. The third question is — given a tubal abortion, say a month or so before the patient is seen, is it better to operate, supposing one can feel a mass, or to allow nature to take care of it? Nature will, I think, generally take care of it more or less sufficiently after a longer or shorter period of pelvic peritonitis with pain if nothing worse, but it seems to me infinitely more surgical and certain to clear out the pelvis in such cases, remove the old clots, break up the adhesions, patch up the tube by resecting portions of it or by splitting it and removing clots from its cavity and sewing it up again. The whole story seems contained in the observations of a recent writer who compared some three hundred cases treated by operation with an equal number treated expectantly. The mortality was in both cases practically the same, but under operative treatment convalescence averaged eight weeks, while under expectant treatment it averaged eight months.

4. The fourth question connected with the treatment is the old one — below or above? Tubal

pregnancies, of course, are accessible from below. Recently Kablukoff removed a seven months' fetus through an opening in the posterior or anterior vaginal wall, leaving the placenta to discharge later. Of course the men who have done enough vaginal celiotomies to be expert thereat may prefer that route in many cases. I am not one of them, nor likely to become so. A single experience satisfied me. I was once asked to drain a pelvic abscess following a miscarriage. On incising the posterior cul de sac I came upon free blood and in my attempts to deliver through that vaginal wound an adherent tubal fetation I stirred up enough more hemorrhage to make me glad enough when I was finally able to control it by stuffing the pelvis full of gauze and then go in after the bleeding point by the abdomen as rapidly as I could with the patient of course quite unprepared for a laparotomy. An incision in the posterior vaginal wall may, however, be useful to settle doubts as to diagnosis, but it is well to be prepared for an abdominal operation. In some cases it might be well to attempt to control further hemorrhage by clamps from below, delaying removal of the tube by the abdominal route until the patient shall have recovered from shock and acute anemia.

5. I have had no experience with extrauterine pregnancies at full term. The treatment of the placenta in such cases is the fifth question that has occurred to me and I think it is about as difficult a one as the surgeon ever has to meet. Whether it is better to attempt to remove it with the probability of a furious and very possibly uncontrollable hemorrhage, or to stitch the sac to the abdominal wound and allow the placenta to come away gradually with the still great danger of hemorrhage when it separates or sepsis if it sloughs, with conditions very good for a hernia in the future, is certainly no easy problem to solve. Of course if the main blood supply to the placental seat can be found and tied off, the problem becomes much easier, but this is by no means easy. In the only case of the kind I ever saw the sac was stitched to the abdominal wall and very tightly packed with iodoform gauze and in a few days the placenta came away without hemorrhage. Men who have removed the placenta in cases where the child was alive at the time of operation describe it as a nightmare.

The only other point I wish to touch upon is the after history of cases of extrauterine pregnancy. What hope can we give a woman that an extrauterine pregnancy will ever be followed by a normal one? I should say very great hope. My sixth case gave birth to a child fifteen months after I had operated upon her for a typical extrauterine rupture. I came across a woman only the other day four months advanced in a normal pregnancy upon whom Dr. E. Reynolds operated last year for an extrauterine. Prochowik found that a normal pregnancy followed an extrauterine in about 40 out of 80 cases. Curiously enough, the proportion of subsequent normal pregnancies was practically the same whether the cases were operated upon or not. A normal pregnancy may even intervene between two extrauterine ones. I have found two such cases. I think every one is now agreed as to the advisability in young women in leaving at least a part of one ovary in mutilating operations upon the appendages for physiological reasons. This is never more true than in cases of extrauterine pregnancy occurring in primiparæ. In view of the many children following an extrauterine pregnancy it seems to me almost criminal to deprive a woman of the chance of maternity. The old teaching was to remove both ovaries, lest she have another extrauterine pregnancy; my view would be to remove as little as possible, in the hope that she may become normally pregnant. It has always been my hope in a suitable case of unruptured tubal pregnancy to be able to split the tube, remove the sac and products of conception, stitch up the tube and drop it back again. Only the other day I determined to do it in such a case at three months. Unfortunately she fell into another man's hands at the last moment, who removed the tube and ovary.

On the other hand, the possibility of a second extrauterine must be borne in mind. I reported three years ago [2] a case of repeated extrauterine pregnancy on whom I had operated twice. I have since then had an even more striking case.

Mrs. R. 11-para. In December, 1901, I operated for a tubal abortion at one month. The diagnosis was confirmed by the microscope. In May, 1902, she had an attack of pain on the other side after two months' amenorrhea. Irregular flowings took place and the history in brief was a typical one. I first saw her three weeks after the rupture and watched the mass slowly disappear without operation.

In September, 1903, I operated again for a tubal rupture at three months or a little less. Though the fetus was not found, the diagnosis was again confirmed microscopically. Thus within the space of three years she had three practically certain extrauterine pregnancies.

I am afraid I have left the question of diagnosis in rather an unsatisfactory condition. I cannot help it, as my own ideas on the subject are very hazy. In many cases a positive diagnosis is out of the question, as it is for that matter in many other abdominal conditions. Often one will have at best but a feeling from the history that in spite of scanty tactile evidence there is trouble in the tube and I am certain that in such cases the 'let alone and wait" policy will never give as satisfactory results as operative interference. If you do not find an extrauterine pregnancy you will probably find some trouble that will be the better for plastic work, — building a new osteum, for instance, if the tube be closed by catarrhal inflammation, or an ovary needs partial resection, or some adhesions should be broken up, or something, — while if you find nothing I do not think that a competent man should be blamed if in view of the possibilities of a neglected extrauterine pregnancy he insists in setting his suspicions at rest one way or the other.

[2] Boston Med. and Surg. Journ., Aug. 23, 1900.

TYPHOID FEVER IN CHILDREN.*

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INDIVIDUAL SYMPTOMS.

Nervous System. — The nervous symptoms of children ill of typhoid are not usually so pronounced as in the case of adults, but individual cases differ greatly from each other. The majority of children are from the beginning in bad humor and whine when disturbed, remaining in this condition throughout the sickness except when the peevishness gives place to a condition of apathy and stupor. Other children are restless from the beginning, tossing about and moaning, the older children complaining of decided headache; these become very apathetic and even fall into a light stupor from which, however, they can be awakened by being taken up, questioned, etc. Still others show an intense restlessness from the very first, crying, screaming and tossing about. During the progress of the disease the mind becomes more and more dull; the little patients become delirious, scream continually, have a tendency to spring out of bed, forget their surroundings and often in great excitement fall back into a deep stupor with which the former symptoms alternate. In some cases I have seen the deepest stupor which lasted for days, in one case even for weeks, accompanied by grinding of teeth and a general relaxed condition of all the voluntary muscles, the child during the entire time scarcely uttering a sound. I have seen complete reduction of the fever besides violent delirium follow the administration of large doses of salicylate of sodium. I cannot remember ever having seen general convulsions in connection with typhoid fever of children, although such cases are recorded. In a case mentioned by Lewy, in a child fifteen months old, laryngismus, rigidity of the neck, general convulsions and anesthesia developed during the course of the illness. The case was probably a complicated affection of the central nervous system. Meningitis is also an occasional complication of typhoid and I have observed one such case which, however, ended fatally. Other cases have been described by Wentworth [26] and Zorm,[27] in which they found the bacillus in the meningitis pus of the spinal fluid. Henoch has observed similar cerebral disturbances, and has called attention to the relative frequency of aphasia in typhoid. The most conspicuous of all the disturbances of the special senses is that of hearing.

Organs of Respiration. — The organs of respiration are always affected in typhoid of children, sometimes very early in the sickness. Lewy's above-mentioned case developed such severe laryngeal symptoms that the stenosis required tracheotomy. Catarrhal affections of the bronchial tubes accompanied by cough so frequently appear in the course of the disease that they may be considered regular symptoms. In the more severe cases, however, atelectasis of the lungs and catarrhal pneumonia may develop out of these apparently insignificant symptoms, complicating the course of the disease and greatly diminishing the chances of recovery. The physical signs (räles, dullness, diminished bronchial breathing) show the condition of the respiratory organs.

Organs of Circulation — Blood. — The action of the heart and pulse have already been described, but it is important to consider the condition of the blood, which, while not always the same and characteristic, usually shows a certain degree of leucocytosis. I have found a proportion of 1:650–1,200 between the leucocytes and erythrocytes. The number of eosinophile cells was small, from 0.5%–0.8%. The amount of hemoglobin varies from 24% to 52%. The foregoing statement is confirmed by the investigations of Naegeli,[28] Becker,[29] Courmont and Barfarow,[30] and they further state that during the period of high fever there exists a constant decrease of the number of neutrophile cells and lymphocytes. The eosine cells disappear almost completely during the height of the fever and only return shortly before the fever becomes normal or even later. I have not been able to find any certain prognostic sign from the condition of the blood, but the blood condition is particularly valuable for differential diagnosis when other signs are absent. The specific agglutinating ability of the blood for new cultures of typhoid bacilli exists in children the same as in adults and is therefore valuable for diagnosis (Widal's reaction), but it is not an absolutely positive sign. This will be more fully considered under the heading "Diagnosis."

Organs of Digestion. — The abnormalities of the digestive tract show themselves even in the lips, tongue and mucous membrane of the mouth. The entire mucous membrane of the mouth is reddened and has a color darker than normal; the lips are dry, the tongue somewhat moist with a gray coating in the middle, red edges and point. If the child remains conscious the picture changes a little during the course of the illness; but if he becomes unconscious and delirious and lies with the mouth open the lips become cracked and bleed easily. A dirty gray coating is formed upon the mucous membrane of the mouth near the edges of the teeth, the tongue looking as if it were smoke-dried, shiny and pointed. The mouth and tongue are also the seat of small ulcers with yellowish coating and red edges, but which is not real aphthæ. Among the real complications we shall have to mention stomatitis and noma. The pharyngeal mucous membrane is reddened and dry; the tonsils are generally enlarged and the seat of follicular inflammation.

*Translated by Dr. C. T. Warner, Marlborough, Mass.

[26] Wentworth: Archives of Pediatrics, 1899.

[27] Zorm: Kinderärzl. Gesellschaft zu Moskau, März, 1899.

[28] Otto Naegeli: Correspondenzbl. f. schwerzer Aerzte, 1899, No. 18.

[29] Ernst Becker: Deutsche med. Woch., 1900, No. 36, p. 571.

[30] Courmont und Barfarow: Société de Biologie, 28 Juillet, 1900; Sémaine méd., 1900, p. 283.

The fact should never be lost sight of that an unusually protracted angina with very high fever may be the only early symptom of typhoid. Wagner and Roemheld [31] describe another form of pharyngitis in which small flat ulcers are formed in the beginning and during the course of the disease but without involving the tonsils, and Cadet de Cassicourt pretends to have seen a catarrhal pseudomembranous and ulcerative form of tonsilitis in this connection. I can confirm the theory that the disease is introduced into the system through the angina. Vomiting is frequently observed in the beginning and during the course of the disease, coming on without apparent cause. I have already spoken of bloody vomiting. In the early days of the illness the abdomen is but little swollen, but it becomes more so as the case progresses, and often develops severe tympanites. The feeling of gurgling in the ileocecal region is not very pronounced, but this part of the abdomen and also along the course of the colon is painful on slight pressure and the spleen is often very sensitive. In children diarrhea may be lacking during the entire course of the disease, or particularly in the beginning, a rather severe constipation may be present, but this gives way later to the well-known and often severe typhoid diarrhea. The spleen, which continues to enlarge till the fever reaches its height, may in the majority of cases be easily palpated below the border of the ribs and when not hindered by tympanites the tumors may be proved by percussion.

Urinary Organs. — The urine has a high specific gravity, is scanty and according to Eckert, Hagenbach and Geier rather frequently contains albumen. In case with high fever I have sometimes found this continuing for a week or two. This is usually accompanied by the presence of cast-off and broken-down epithelial cells and casts. It is questionable if we have a real nephritis in these cases, but a nephritis may be a complication and an attempt has been made to fix a renal form of typhoid (Amat, Weil). Ehrlich's diazo reaction is important in considering the excretion of the typhoid bacillus with the urine, as it is a valuable test, particularly during the height of the fever. Since I have paid more attention to this reaction I have not found it absent in a single case, and I therefore consider it a helpful diagnostic aid though not absolutely certain. In the beginning of the illness the excretion of urea is often but not always increased. In the majority of cases also a strong indican reaction is present. The chlorides are diminished, but the excretion of the inorganic salts shows nothing characteristic (Jacubowitsch).

Skin. — The most noticeable appearance in the skin of typhoid patients is the roseola. It appears scantily but is rarely lacking, and if one look closely one is almost sure to find the small slightly elevated spots which are scarcely as large as a lentil. In exceptional cases a very abundant rash appears which may almost be mistaken for an accidental exanthem. In relatively numerous cases the roseola reappears even after the fever has disappeared and is usually followed by a relapse. I have never seen the exanthem described by Rendinger,[32] which simulates measles and scarlet fever, neither have I observed the desquamation which he and Jacobi [33] describe. Miliary rash appears on the skin of children very easily and often, and therefore frequently accompanies typhoid. Considering the inclination of severely sick children to soil themselves, deficient nursing may easily be accountable for severe erythema and eczema. However, these complications are not so common as one would expect, and decubitus is really the exception, and when it does occur it appears mostly as a necrosis of the skin over the coccyx. Hemorrhage of the skin occurs but rarely and then in connection with a hemorrhagic diathesis or blood dissolution. Occasionally hydrops of the skin accompanies typhoid with or without albuminuria, or it may appear as a secondary symptom.

[31] Roemheld (Vierordts' Klinik): Jahrb. f. Kinderheilk, Bd. 48, p. 207.

ABNORMALITIES.

Abortive form. — The most insignificant and shortest forms of typhoid often occur in children and are but a weak reflex of the typical illness. These cases are characterized by slight gastric disturbances, somewhat typical typhoid tongue, moderate fever with evening exacerbations and positive diazo and Widal reaction; but still more significant is the occurrence of other more serious cases at the same time.

Relapse. — A relapse is characterized by the reappearance of the fever some days after it has disappeared, the return of the typical fever curve and of the other described symptoms. A relapse may continue as long as the first attack and, as I have recently observed, even longer. They are very disagreeable. I have several times seen such cases with two long and obstinate relapses, seriously exhausting the patient, but ending in recovery, — one of them after a critical sudden fall of the temperature. Children are unquestionably more predisposed to relapses than adults and Montmollin [34] has observed that girls are more liable to this complication than boys. These relapses may of course end fatally. The nervous forms of the fever which I have described and which are accompanied by vomiting, irregular pulse, grinding of the teeth, loud crying and very deep stupor may cause extremely great difficulty in diagnosis. These cases simulate tubercular meningitis very closely and errors can only be avoided by the most careful examination of the spleen, the appearance of the roseola, the condition of the tongue, observation of the fever curve and finally the knowledge of an epidemic or the proof of the typhoid bacillus and positive Widal reaction. The following is a case in point:

A pale, fairly well nourished, but very sick-looking boy of two and one-half years was received into the hospital with a temperature of 40.6° C. (105+° F.). During the

[32] Rendinger: Rev. de Méd., 1900, No. 2.
[33] Jacobi: Pediatrics, viii.
[34] G. de Montmollin: Inaug. Diss. Neuchâtel, 1885.

first days of the illness symptoms similar to typhoid appeared with the exception of a slight stiffness of the neck. Suddenly, however, great restlessness and jactitation were observed, followed by loud screaming, trembling in all the extremities and a convulsive sucking motion of the mouth. The pupils reacted to light. Cyanosis and dyspnea now appeared. All these symptoms were more marked on the following day, particularly the spasmodic contraction of the muscles. Violent screaming became more frequent. The child became weaker and weaker and finally died on the ninth day after coming to the hospital, but real convulsions never developed. It is noteworthy that on the first days both ears ulcerated after paracentesis. The paracentesis did not at all lessen the nervous symptoms. Aside from the severe congestion of the blood vessels of the pia mater the brain showed scarcely anything abnormal and only a small amount of serous secretion was found in the tympanic cavity. The spleen was greatly enlarged and moderate-sized typhoid ulcers were found in the intestine. The severe nervous symptoms were undoubtedly due to the severity of the general infection.

COMPLICATIONS AND SEQUELÆ.

The frequent complications of the respiratory organs have already been spoken of. Nearly all recent investigations prove that the typhoid bacillus is the cause of the complications ,particularly the frequently observed fibrous and catarrhal forms of pneumonia and atelectasis of the lungs. Severe acute diffuse laryngitis (Lewy, Schuster[35]), largnygeal perichondritis with abscesses, ulceration of the larynx and threatening acute edema of the glottis do not belong to the complications of typhoid. Pleurisy and empyema occur in typhoid relatively seldom, at any rate more rarely than in scarlet fever. Fernet, Achard, Fraenkel and others have proved the bacillus in the sero-fibrinous exudate. Single cases of gangrene of the lung are recorded. On the part of the heart adynamic conditions are less to be feared on the part of children than in adults; however, they do occur in obstinate and severe cases and become particularly dangerous to such children as continually refuse to take nourishment. They may be easily recognized by the slight coolness of the extremities, weak, diminished or rapid and irregular heart action and by a dullness of the heart sounds, particularly the disappearance of the aortic second sound. These deserve careful attention, particularly if on account of the fever we desire to give antipyretic remedies. I have not observed so great a tendency to bleeding in children as in adults, except early in the sickness nosebleed is somewhat frequent; but this rarely becomes serious. However, when the blood is swallowed it may be vomited. Montmollin records a case of embolus of the left brachial artery in a girl eight years old, sick of typhoid, and single cases of pericarditis and endocarditis complicating the disease. I have seen thrombosis of the saphenous vein in connection with typhoid beside severe decubitus in a girl fourteen years old. These, however, are rare cases, Certain anomalies of the digestive organs are occasionally observed in the course of typhoid. Parotitis and noma may occur in this connection and while they are serious fortunately they are rare. Parotitis appears as a swelling on the side of the face in front of the ear and sometimes, but not always, goes on to suppuration. As a rule noma is fatal, but I have had the good fortune to see one such case recover.[36] The affection generally begins on the gums or the mucous membrane of the lips as a dirty yellow or gray-green coating simulating diphtheria. This gradually spreads and advances into the mucous membrane of the cheek which decays into a fetid mass surrounded by a dark infiltrated border. The destruction of tissue in the progress of the disease is enormous and the sight of the child, who spreads a pestilential fetor to a great distance, is disgusting.

Bloody diarrhea is seldom observed in typhoid of children. It does occur, however, in older children, and may become serious on account of the loss of strength caused by it. I have seen a boy six years old recover from typhoid fever complicated by severe nosebleed, intestinal hemorrhage and petechiæ of the skin. In another case the illness, accompanied by high fever and severe general nervous symptoms, came to a crisis with an intestinal hemorrhage. The temperature suddenly dropped to 36° C. (96.8° F.) and from that moment convalesence began. In another case, ending fatally, a boy nine years old developed purulent diarrhea. The autopsy showed very extensive typhoid ulcers of the colon as well as of the small intestine. Peritonitis caused by the perforation of an intestinal ulcer is rare, although Montmollin records 7 such cases of which 3 recovered. In 117 cases mentioned by Roemheld 3 died of perforative peritonitis. I have had the opportunity of seeing two such cases, a boy six years old and a girl of ten. Both cases terminated fatally. The latter case had the following history:

The girl ten years old had been severely ill for fourteen days and was brought to the hospital in a state of collapse and delirium. Everything pointed to severe typhoid fever — stupor, temperature 39–40° C. (102.2°–104° F.), weak pulse, enlarged spleen, slight diarrhea and Widal reaction, 1.60 dilution positive after two and one-half hours. On the third day after coming into the hospital she had a sudden chill and became collapsed and pulseless. Nose and tongue were cold, stools frequent and spontaneous. In spite of the use of all the known internal and external stimulants in addition to the injection of physiological salt solution, the case progressed badly. The abdomen appeared flat, the abdominal walls on their external border seemed stretched and intensely painful on the slightest pressure, area of liver dullness was enlarged. The collapse increased, the eyes became sunken, the abdomen was hard, contracted and painful on the borders under palpation. Vomiting developed and the spontaneous stools were thin, green and foul smelling. The child died the fifth day after coming into the hospital. The autopsy showed a very large number of deep typhoid ulcers, two of which had perforated the walls of the jejunum and ileum. The perforations were scarcely larger than a poppy seed or a lentil, the intestine was covered with a sticky pus and a diffuse peritonitis had developed.

Acute otitis media in the course of typhoid fever is a serious complication and leads to grave cerebral symptoms — dullness, stupor, delirium, and particularly the continued high fever. With the spontaneous discharge of pus or after paracentesis the symptoms soon disappear and the course of the illness becomes more favorable.

[35] Schuster: Archiv f. Kinderheilk., Bd. 12, p. 32.

[36] Archiv f. Kinderheilk, Bd. 13, p. 302 u. 402.

Among the further sequelæ belonging to the disturbances of the cerebral function are mania or melancholia, with chorea, tremor, paralysis of the extremities as a result of peripheral polyneuritis (Judson S. Bury [37]), followed by atrophy and diminished reaction, and aphasia. The aphasia usually appears in connection with an adynamic disturbance of the heart as described above. In these cases, as a rule, the motor form of aphasia is observed and the intended speech is indistinctly articulated. Sensory aphasic disturbances are not altogether unknown and other psychical changes sometimes take place. Deafness often occurs as a result of chronic otorrhea and sometimes without it. Purulent joint inflammation, diphtheritic coating of the vulva of little girls, skin diseases, as boils, abscesses and erythema, are also among the less commonly observed complications and sequelæ of typhoid fever. I have been able to cultivate the typhoid bacillus from the furuncles of an eight year old girl convalescing from the fever. Erysipelas is a frequent sequel and develops as in Rheiner's case from the pure typhoid bacillus or from the erysipelas coccus (Escherich and Fischl). As further sequelæ periostitis, ending in necrosis of the bones, has been described (Freund), total necrosis of one extremity (Drevitt [38]), and the already mentioned case of hydrops (Henoch). Finally, typhoid fever frequently occurs in connection with the acute exanthematous diseases or other infectious processes, as scarlet fever, measles, whooping-cough, diphtheria or membranous croup. I saw in the child of a physician during the course of two months, whooping-cough, broncho-pneumonia, typhoid fever and measles, from all of which the child recovered. With three children in one family whooping-cough complicated severe typhoid. Malaria occurs with typhoid and Russian physicians particularly (Bistrow) point to this peculiar combination. In these cases described by Bristow the abnormal fever curve could only be brought to the more regular form by the administration of large doses of quinine.

DIAGNOSIS.

The diagnosis of typhoid fever, which is difficult in the beginning, will become easy as the case develops by making continued observations of the fever curve and by a process of exclusion. The chief diagnostic signs are the general appearance of the patient, the characteristic remittent fever, gastric disturbance, diarrhea, condition of the tongue, enlargement of the spleen, roseola and the diazo reaction. The diazo reaction is explained as follows:

Mix an equal quantity of urine and sulphonitic acid solution (sulphonitic acid 5.0; hydrochloric acid, 50; distilled water, 1,000) and add 2–3 gtt. of a solution of sodium nitrite (sodium nitrite, 0.5; distilled water, 100). Add to the above mixture ½% of ammoniac. The whole must be well shaken in a test tube and the color of the rising foam observed, and if it appears dark red the reaction is positive. The sodium nitrite solution must develop a brown vapor when mixed with a few drops of a concentrated hydrochloric acid. This test must be applied from time to time and when necessary a fresh solution be prepared.

The Gruber-Widal reaction is usually but not always another very useful help in diagnosis. I have, however, several times observed that all clinical symptoms pointed to typhoid when this reaction was lacking; nevertheless the diagnosis of typhoid fever has been made essentially easier by the introduction of this test, which it should not be forgotten is a result of Pfeiffer's discoveries. The reaction takes place to a certain extent with normal blood serum, but it is more quickly and certainly performed with typhoid serum, and above all it occurs in high dilutions. It rests upon the common observation that blood serum in a dilution of 1:60 when brought into contact with a drop of a bouillon typhoid culture twelve hours old brings about an agglutination of the bacilli which may be examined microscopically. The test is made in the following manner:

From a small puncture of the child's finger remove a little blood and let it set in a short test tube. Mix one part of this blood serum with 50–60 parts of a very opaque typhoid culture which has been in the thermostat at 37° C. (98½° F.) for six to eight hours. We then examine the mixture microscopically by means of a hanging drop and observe if the naturally lively bacilli remain quiet and form into balls. In case this fails the experiment is repeated in fifteen minutes to one hour, always leaving the preparation in the incubator. The reaction is not considered satisfactory if a large number of bacilli remain movable and single. Microscopically the agglutination can be made certain. If we leave the mixture of diluted blood serum with the typhoid culture in the incubator the bouillon shows a precipitate while the liquid has become clear.

The differential diagnosis between typhoid fever and miliary tuberculosis is often difficult and in many cases we must wait for the appearance of meningitic symptoms, irregular pulse, vomiting, constipation and finally general convulsions before we can be sure we have the latter condition. Among the feverish illnesses, pneumonia, particually in the early stage, may be mistaken for typhoid, but in this case repeated blood examination will undoubtedly greatly assist in differentiating the two diseases, as in pneumonia we usually have an increase of the leucocytes while in typhoid they exist in diminished numbers. Finally, frequent physical examination of the lungs will reveal the pneumonic center and prevent further error.

PROGNOSIS.

The prognosis of typhoid fever of children is as a rule favorable. I have observed 88 cases in the hospital, of which 5 died, a mortality of 5.6%. In my private practice I have been more successful. This corresponds pretty closely with the experience of others. The majority of authors record a mortality of 7.8% (Steffen, 6.8%; Henoch, 7.5%; Wolfferg, 4.7%; Barbier and Herrenseckmidt 8.6 and later 4.3%; Cadet, de Gassécourt, 8%; Variot and Devé, 10%; Comby, 7.26%), but there are more fatal epidemics, as Guinon reports a small series of cases with a

[37] Judson S. Bury: The Medical Chronicle, June, 1892.
[38] Drevitt: Lancet, 1890.

mortality of 17.34%. This depends upon the malignancy of the infection. The prognosis depends very materially upon the treatment and the period at which it is begun. There can scarcely be a doubt that moderate antipyretic treatment with a consideration of the complications improves very considerably the prognosis. It is interesting to compare the results in different institutions, but experience in the hospitals of Lyon, Basel, Paris and other cities proves that judicious application of the cold water treatment has reduced the death rate from 15% to 3.5%. Of course the treatment must be used intelligently. Proper diet and careful nourishment decide the prognosis in many cases as errors in diet and insufficient nourishment often affect the outcome badly. Cleansing the patient and everything coming in contact with him is of the utmost importance.

The prognosis of typhoid is affected seriously when pneumonia, parotitis or other infectious disease or even noma complicate the disease. One of my patients who died had suffered shortly before from chorea with endocarditis. In cases complicated by cerebral disturbances, deep coma, severe delirium, jactitation, severe diarrhea, the chances of recovery are very much reduced. I have had a patient four years old who died from severe diarrhea and a slow but progressive paralysis of the heart undoubtedly brought about by an error in diet; and in the case of the before mentioned boy with purulent diarrhea, the fatal intestinal affection was probably from the same cause. We have very little to fear from a decubitus in the typhoid of children.

TREATMENT.

In even the light epidemics of typhoid fever the strictest prophylaxis must be exercised. Children should be protected from the use of infected water and food, particularly milk, and during times of danger they should be provided with drink which has been boiled and afterward cooled. It is of the greatest importance to disinfect everything coming in contact with the patient,—the washing, playthings, books, etc., — for only in this way is it possible to prevent the spread of the disease in the family. Adults who have to care for the patients must be careful to cleanse the hands. As Koch has recently very properly pointed out the slightly ill are very often the careless transmitters of the disease to others. Children are often seen who complain of nothing but diarrhea, but who later develop fever and die. These are certainly often the source of typhoid contagion and the excreta of all such cases should be carefully disinfected. Very few diseases develop more urgent therapeutic problems than typhoid fever, and the physician's resources are often severely taxed; but these are cases where his services are of decided value. The knowledge that the typhoid bacillus is the cause of the disease brings to the front the question of a specific antibacteria therapy. Experiments have been made in this department of immunisation therapeutics by means of serum or the treatment by the metabolic processes of foreign bacteria,[39] but for the practical purposes the results have not been satisfactory. For some time calomel has been a much lauded drug as a typhoid abortive remedy and on account of the tolerance of children for this medicine no mistake will be made if we use it in the early stages of the sickness. We may prescribe it in doses of 0.03 to 0.05 ($\frac{1}{2}$ to $\frac{3}{4}$+ gr.) every half hour or every two hours, provided the patient is still in the early stage of the fever. Unfortunately experience has not borne out the early reputation of the drug in this connection, and this is true in a higher degree of naphthaline, sodium benzoate, iodoform, benzo-naphthol, etc. With the knowledge that continued high fever plays an important part in the danger of typhoid the antipyretic method of treatment has the same importance for children as for adults and we have therefore in both classes of patients the two great groups of remedies: (1) The bath and the cold pack. (2) The internal administration of antipyretics, or quinine, salicylate of sodium, antipyrine, antifebrine, phenacetine, lactophenine and others. While we acknowledge the general principles of the above outline of treatment, we object to its routine application. In adults, energetic antipyretics are contraindicated under certain circumstances, *e. g.*, threatening heart paralysis, complications of the organs of respiration (pneumonia, atelectasis) and certain disturbances of the digestive apparatus (diarrhea, dysentery). These contraindications apply in a high degree to children, for we must take into consideration certain physiological peculiarities possessed by them. First of all the well known fact must be borne in mind that the sensory nerves of the skin are very irritable, and also that the reflex irritability of the respiratory centers when cold is suddenly applied to the skin is very great. These peculiarities, which are of advantage in atelectasis, capillary bronchitis and catarrhal pneumonia, are a disadvantage under other circumstances. Rapid, repeated and long-continued cooling of the skin is dangerous to children on account of the risk of overtiring the respiratory centers, but also on account of the danger that this irritation may affect other centers, particularly the motor center. It is still more important to consider the mechanical effect of the external application of cold on the heart through the contraction of the small vessels of the skin and the corresponding dilatation of the internal blood vessels. The weakened heart action brought about by insufficient nourishment or pathological changes of the heart muscle may easily lead to fatigue and heart paralysis. A similar effect may also be brought about by such remedies as directly affect the heart muscle as, *e. g.*, salicylate of sodium and most of the other antipyretics. The rapid radiation of heat from the relatively large surface of the body may easily lead to unpleasant complications. Owing to these peculiarities, therefore, the antipyretic treatment of children is like a two-edged sword,

[39] Versuche von Rumpf und Fraenkel: Deutsche med. Wochenschrift, 1888, No. 41, mit abgetöteten Culturen von B. pyocyaneus.

requiring careful use. Other factors must be taken into consideration. It must be remembered that the antitoxin which neutralizes the toxines circulating in the blood are formed under the influence of the fever; therefore, a forced cooling of the body, instead of assisting the patient, simply keeps down the high fever, prevents the elimination of toxines and does the patient injury. Each case must, however, be dealt with according to its individual needs.

Children with typhoid cannot stand very cold baths. The enormous excitement caused by the application of cold to children counterbalances the advantage we might otherwise expect to gain and dangerous collapse may occur during or afterward. The slowly cooled bath holds the fever down longer than the cold bath; therefore it is best to begin with water not lower than 25° C. and gradually reduce it to 22° C. or 20° C. (77° F.–68°F.). The child remains in the bath about five to ten minutes or till a slight feeling of chilliness appears. Before each bath a dessertspoonful of Hungarian or port wine is given. The younger the child the more careful we must be in the application of the cold water treatment. Children twelve to fourteen years old bear water of 20° C. from the beginning. The permanent luke-warm bath after the method of Riess is apparently to be recommended. By this method the child is laid upon a sheet which is spread out in the tub beneath the surface of the water and there he remains according to the height of the fever for hours or days. Children bear the cold pack very well and it may properly replace the cold bath. By this method a moderately moist sheet is spread upon a woolen blanket and the child is quickly rolled in them and allowed to remain there ten minutes. This procedure is repeated three times in quick succession, after which the patient is rubbed dry and placed in bed under a light covering. The attempt to keep the temperature almost to the normal by means of the cool bath or pack every two hours is decidedly objectionable and no one knows what mischief may be caused by it. A certain degree of fever belongs to the sickness, but excessive temperature must be treated and if possible kept below 40° C. (104° F.), but accompanying circumstances must be considered. I have never ordered more than two or three baths a day for children. If possible, limit the antipyretic treatment to the use of external means for reasons which I have more fully set forth in my brochure on antipyretics [40] Internal antipyretics are used very unwillingly, but among these preference is given to quinine, but the dose must be sufficiently large. For a child one to two years old, I use at night, within one or two hours, 0.5 to 1 gm. (8–15½ gr.). As a rule we get an excellent effect provided the stomach retains the medicine, — otherwise the same quantity is administered per rectum. A. Jacobi says he has had good success with subcutaneous injections of quinine carbamide, but I have had no experience with it. Salicylate of sodium, phenacetine and antipyrine may be very cautiously used and we may perhaps give aspirin (or pyramidon, 0.1–0.15) in doses of 0.5 gm. (8¼ gr.) two to three times a day, but all these remedies depress the action of the heart and may become dangerous to weakened children. I have seen such a result follow the rapid reduction of temperature by aspirin.

Under constant control of the thermometer, antipyretics may be administred in the above manner, but there still remains much more to do for the patient besides the reduction of the fever.[41]

Success in the treatment of typhoid depends largely upon the proper nursing of the patient. Bouillon, wine, yolk of egg with water and wine (1 yolk egg, 2 teaspoonfuls wine, 5 teaspoonfuls water), milk, cornstarch preparations, as encosine, eulactol, peptone preparations, plasmon and somatose, are among the foods that may be given. The intervals of feeding should be short, ¼–½ hour, each feeding to consist of 1 to 2 teaspoonfuls. All solid food is forbidden. For drink we may give water with a little wine or when diarrhea is present thin rice, barley or oatmeal gruel. Diarrhea is best treated with bismuth subnitrate 1 to 2 gm. (15–30 gr.), bismuthose 2–3 gm. (15–30 gr.), or with tanalbin or tanningen 0.5–2 gm. (8–30 gr.). Intestinal hemorrhage is treated with cold applications externally and internally with cold nourishment and lig. ferri sesquichlori 3–5%,or gelatine solution.

The organs of respiration require particular attention. Atelectasis and diffuse bronchitis may be treated by liquor ammonii anisati and benzoic acid. The pulse and heart sounds must be very closely watched and if the second sound weakens and a blowing heart murmur is observed in connection with a weak apex beat and irregular pulse we must omit all antipyretic remedies and in spite of the fever resort to energetic stimulation, as wine, musk, camphor, liq. ammonii succinati, caffein (Jacobi [42]) and good nourishment. Inhalation of oxygen may be used, particularly if the peripheral circulation is weak and the extremities cool.

Delirium, jactitation and stupor follow either continued high fever, cerebral complications or otitis media. In case of otitis media it is not wise to delay too long before resorting to paracentesis of the tympanic membrane. When the hyperpyrexia from the general intoxication shows itself in cerebral symptoms we must resort to antipyretic remedies and apply ice bags to the head.

It is sometimes necessary to resort to narcosis somewhat to quiet the restlessness of the patients, and for this purpose chloral hydrate is the best remedy, given in doses of 0.5–1.5 (8–24 gr.) by the stomach or rectum; or we may use the more

[40] s. Hierzu Baginsky: Die Antipyrese im Kindesalter, Hirschwald, 1901, Berlin.

[41] Respecting the application of these antipyretics I refer to the two following articles: 2 Hagenbach-Burckhardt: Baginsky, Henocksche Festschrift, p. 125, ff. 2 Demme: Jahresbericht des Jennerschen Kinderhospitals, 1889.

[42] Jacobi: Archiv of Ped., March, 1885, and Therapeutics of Infancy and Childhood, Philadelphia, 1898, 2 Aufl., auch im Deutsch. übersetzt von O. Rennert, Berlin, 1898, Springer.

recent drugs sulfonal or trional in the same dose. Morphine is prescribed rarely and unwillingly to little children and then in doses of only 0.002–0.008 ($\frac{1}{33}$–$\frac{1}{8}$ gr). The bromides have but little effect. Albuminuria requires scarcely more than alkaline waters as Vichy, Wildunger, Fachinger and others. Urotropine has a favorable effect when from the presence of pus in the urine we suspect an inflammation of the pelvis, of the kidney or the bladder and we wish to render the abundant excretion of typhoid bacteria harmless. We may give 1–1.5 gm. (15–24 gr.) per day.

Parotitis should be treated by means of ice or cold water compresses and inunctions of ichthyol ointment; but if pus develops in the gland we must make an early and free incision under strict antiseptic precautions.

Complications, as periostitis, decubitus, etc., must be treated on general surgical principles by applications of iodoform, acetic acid, corrosive sublimate, etc., and if diphtheria complicates typhoid the early use of diphtheria antitoxine must not be neglected.

During the period of convalescence it is particularly important to watch carefully the action of the digestive organs. If during this stage of the sickness the tongue becomes again coated and the patient develops a slight diarrhea, heaviness in the region of the stomach and a return of fever it will be necessary to diminish the quantity of the nourishment till these symptoms are past. We must be exceedingly careful in passing from a liquid to a solid diet and particularly to a meat diet. It is not safe to give meat for at least a week after the temperature is normal. Bouillon, beef tea, fresh meat juice with a little wine, Scholl's Puro, Valentine's or Brandt's meat juice, Rosenthal-Leub's meat solution, peptone preparations and well prepared leguminous soups will render a meat diet for some time quite superfluous even in very debilitated children.

THE FINSEN LIGHT CURE.

BY H. JOHN STEWART, M.D., CHICAGO, ILL.

HAVING read and heard so much about the Finsen Light treatment in the cure of disease, I decided in April of this year to make a personal investigation to see and learn for myself if it was true that such diseases as lupus and rodent ulcer could be cured by light. I visited several institutions where the Finsen Lamp was in operation. In Manchester, England, in the Salford Skin Hospital, they had a Finsen Light department under the supervision of Professor Brooke, who informed me they were unable to treat half the sufferers who applied for treatment, and they had solicited, by public subscription, $125,000 for the erection of a new hospital for skin diseases, where they would be able to enlarge the "light department" so at least two hundred people could be treated daily, as there were people on their waiting list whom they would be unable to treat, with their present facilities, for an indefinite time. Professor Brooke was most enthusiastic over the wonderful results they were obtaining there.

I next visited the London General Hospital of London, England, and found they were just completing an immense light department that had been established by the present Queen of England, then Princess of Wales, in 1900, who presented the first lamp at that time, and as it was found to be far too inadequate, she had just given a second lamp, and Alfred Harmsworth had also given $50,000 for the perpetual endowment of another Finsen Lamp in this department, and they were then building a platform to receive the king and queen, whom they expected to come June 11 to dedicate this new department, and even with these increased facilities, I was informed by Professor Sequirey there were patients on the waiting list who were unable to receive treatments.

I next visited the Light Institute at Copenhagen and found that all the statements that had been made regarding the Finsen Light were not in the least exaggerated. I had the pleasure of meeting and studying under Professor Finsen himself and was extended every courtesy by Professor Finsen and his assistants at this institution. He seemed very much pleased to describe in the minutest detail the apparatus, treatment, etc., and gave me a detailed history of the Finsen Light.

The Finsen Light is a large, specially constructed arc lamp of 20,000 candle power, or twenty times stronger than an ordinary street lamp, and uses from sixty to eighty amperes of current. This lamp burns a specially made carbon which can only be procured at Copenhagen. In the upper holder is a large carbon, while a smaller one is used in the bottom holder; when properly ad justed for arcing a maximum number of violet and ultra-violet rays are produced. The advantage of the Finsen Lamp over others is in the greater number of violet rays produced. The Finsen Lamp produces a much greater number of chemical rays than sunlight, as the atmosphere absorbs a large percentage of these rays. The light is so intense it is impossible to look at it with the naked eye and it is necessary for all the attendants and patients to wear dense smoked glasses while the lamp is in operation; an aluminum hood about two feet wide surrounds the lamp, which hood is fringed on its lower border with a deep crimson-colored paper skirt to further aid in excluding the diffused light from the patients.

The concentrated rays are carried from the arc to the patients through four telescopic tubes, known as converging tubes, suspended at an angle of forty-five degrees, the tubes containing a series of rock crystal lenses so arranged that reservoirs for running water exists between them. By means of the water screen and rock crystal lenses, all rays but the violet are eliminated, and these rays are converged and concentrated, thus vastly increasing the healing and bactericidal effects.

The heat from the original arc is so intense that to prevent cracking of the lenses and discom-

fort to the patients a stream of cold water is kept constantly circulating through the reservoirs or water screens.

To further concentrate and cool the rays a compressor is provided which consists of two rock crystal lenses so arranged that a chamber for running water exists between them. This part of the apparatus is used to compress the affected area and make it bloodless during the treatment, thus facilitating deeper penetration. The Finsen arc light has been used with marked success in curing many skin diseases, thought until this time incurable, especially lupus and rodent ulcer. During a period of six years the Finsen Medical Light Institute at Copenhagen has grown from a very small shed, where they were only able to treat one patient at a time, to a magnificent institution where they are now treating three hundred people daily, and light institutes have been established in London, England; St. Petersburg, Russia; Paris, France; and Chicago, Ill., where they are all carrying on a similar work to the parent institution.

It has been a popular belief that lupus was a very rare disease and common only in the northern countries, and although it was supposed there was no lupus in London, yet the hospitals are now treating 175 daily, and the management was compelled to install two more lamps and build a separate department, so great has been the demand from people seeking relief. Lupus was considered very rare in the United States, but since the establishment of the Finsen Light Institute in Chicago, the author is informed they have been taxed to their utmost capacity, and they, too, have found it necessary to increase their facilities, as there are now patients on the waiting list who are not able to receive treatment. It seems but a question of a short time until light institutes will be established in every large city in America, because it has proven so efficacious in many other skin diseases, besides lupus and rodent ulcer, such as acne, alopecia, areata, localized eczema, chronic ulcers and nevus. The treatments are given while the patients recline on couches. By firm pressure with the compressors on the tissue to be treated, the blood is removed and more heat can be borne and deeper penetration produced; this compression has another important advantage in that the bactericidal effect is greater because it has been shown that the corpuscles absorb a considerable portion of the rays and thus prevent deep penetration.

The affected area is placed about ten inches from the distal end of the converging apparatus, and the treatments, or seances as they are called, take about one hour daily in lupus and rodent ulcer, and in other skin diseases from ten to twenty minutes, depending upon each individual case.

The results attained have been hardly less than marvelous since from carefully compiled statistics covering a series of over eight hundred cases of lupus treated at the Finsen Institute an overwhelming percentage of cures and an insignificant number of failures is shown, and Professor Finsen goes so far as to say that in lupus vulgarus cures can be obtained in 97% of cases, even where the whole face is involved. In these eight hundred patients, with ages ranging from five to seventy-four years, the average duration of disease was eleven years. This treatment has an advantage over the X-ray in that there is no danger of burning and consequent sloughing. With the light treatment we are dealing with a known quantity, while with the X-ray we have an unknown quantity of uncertain action.

The light treatment causes no pain; a red erythematous spot and blister appears where the light is applied, and in five or six days the scab falls off and the ulcer is healed beneath, and the skin is left free from scar or cicatrix, but red, the redness, however, after a variable period fades and leaves the skin white and uncontracted, except where there has been a loss of tissue from the disease before treatment.

In conclusion, the author would state that the possibilities for the light treatment in the curing of diseases are still unknown, and believes in a limited time it will take an exalted position in the field of medicine and surgery.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

Meeting of Oct. 20, 1903; the president, Dr. J. B. Swift, in the chair.

Dr. Malcolm Storer read upon

SOME QUESTIONS RELATIVE TO EXTRAUTERINE PREGNANCY, WITH ESPECIAL REFERENCE TO TUBAL ABORTION.

Dr. F. H. Davenport: Curiously enough I have had very little personal experience with extrauterine pregnancy and any opinions of mine are based rather upon general principles. As to the question of operating when the patient is in a condition of shock I must say that on the grounds Dr. Storer has outlined I would feel it much safer to operate than to wait till the patient reacts.

Dr. J. L. Hildreth: The dangers of waiting have been borne in on me by experience. It seems to me that waiting is not as good surgery as immediate operation.

Dr. F. A. Higgins: While I am by no means in favor of the vaginal operation for this indication, it has so happened that I have recently performed it on three separate occasions, the patients being in such condition that apparently it was merely a question of draining pus cavities. I shall report the cases later at length. As to the question of the after history of such cases I have under my care now a patient whom I delivered two years ago. Next year she had an extrauterine pregnancy and is now four months pregnant normally.

Dr. G. O. Clark: I have seen in my service at the Massachusetts General Hospital eight

cases. In all the blood count gave 15-20,000 whites and this question of the blood count seems a very important one. There is now in the hospital a case that presents an interesting abnormal symptom, *viz.*, a pulse of 76, although the white count is over 20,000. She has had amenorrhea for three months. The first symptom of trouble was a sudden sharp pain in the lower abdomen yesterday without apparent cause.

DR. J. G. BLAKE: My feeling would be to operate in every acute case, while recovery in the chronic cases seems as frequent when they are not operated upon. So seeing for the first time a case some time after rupture I should probably leave her alone.

DR. G. J. ENGLEMANN: I should like to speak of one point, though it is of no great practical importance, as it means operation either way. I think Dr. Storer did not call attention to the possible confusion of a ruptured right tube with appendicitis. In each case the location of pain is about at McBurney's point, the symptoms are practically the same. I published a case in 1891 where it was quite impossible to tell the conditions apart.

DR. F. S. NEWELL: With reference to the question whether it is better with a living child to attempt to remove the placenta or attach the sac to the wound and allow it to separate of itself I recall a case I saw operated upon where the attempt was made to remove the placenta. The hemorrhage was so great that she died some twenty-four hours later. My feeling is that if the placenta is attached to the mesentery or intestine it is better to leave it.

DR. J. B. BLAKE: In deciding whether to operate at once or to wait, the whole question turns of course on whether the bleeding has stopped or not. I remember some three years ago Dr. Cabot raised the question whether there were any constant variation in the blood that would decide this question. At the time we were unable to find anything that was reliable. I remember that at that time certain foreign observers had said that operation with hemoglobine less than 30% practically meant death, yet I remember several cases that were successfully operated upon with a smaller percentage than thirty.

DR. J. B. SWIFT: Bearing on the question of normal pregnancies following extrauterine I have a patient whose first pregnancy was ectopic. She has had four normal ones since then. In the case of an extrauterine pregnancy at full term with a live child the child should be given every consideration. If it is dead the mother's interests are of more importance and it becomes a question of when it is best to interfere. In a case I reported some time ago I waited six weeks after the death of the child, watching the placenta gradually grow smaller. When I finally did operate it was quite easy to remove child and placenta. We do not know after just what lapse of time the removal of the placenta becomes a simple matter. In my case it was so after six weeks.

DR. ALFRED WORCESTER read a paper entitled

OBSTETRICAL NURSING.

DR. F. A. HIGGINS: Dr. Worcester has given us a paper that we might discuss at considerable length. I do not suppose he expects us to agree absolutely with him in all things. I should take issue with his first statement that he considers the nurse as of more importance in a normal case than is the physician. I should also dissent from some of the educational features that Dr. Worcester would supply, not from any feeling that the nurse would be over-educated, but because I think they are impracticable. I agree entirely that all hospitals should give at least some education in obstetrics.

DR. G. H. WASHBURN: A most important matter in training is that the nurse should be taught to look after her patient from the home point of view rather than the hospital point of view. Hospital methods are not adapted to home needs and often the best hospital nurses are complete failures when they try home nursing. Most hospital nurses have to pick up this knowledge of the difference between hospital and home needs as best they can and it certainly would be a great advantage if to their scientific knowledge there could be added some instruction in home nursing. It is only when a nurse can accommodate herself to household conditions that she can do her whole duty.

DR. A. K. STONE: I am very glad to hear Dr. Worcester has come round to acknowledge that there are grades in nursing — that some should have some training and some more — he did not always hold this view. In a discussion like this we must consider the grade of nurses that we aim at turning out. The great trouble with the training schools is that they aim at turning out nurses fitted to go into the families of the very rich. We are now coming, however, to recognize the fact that there are large classes of society who cannot afford to pay for nurses such as the product of our training schools hitherto. The large hospitals have come to the point when they have recognized that they must add to their curriculum many things hitherto excluded. Up to quite recently, however, there has not been by any means the cordial response on the part of obstetricians that would have been desirable.

DR. H. T. SAWIN: One of the things that should be most strongly borne in on nurses is that they must learn to accommodate themselves to the servants they find in houses. This they get no idea of in the hospitals. I would like to ask Dr. Worcester whether he would be willing to take a nurse's word that the first stage of labor was progressing normally.

DR. NEWELL: I do not think it is the nurse's province to say whether a pregnancy is progressing normally.

DR. J. J. PUTNAM: I sympathize with much of what Dr. Worcester has said which I recognize is part of his general view of raising the standard of nurses. It does not seem to me quite clear what chance a nurse has of ever recouping

herself for all the time and money she has spent in getting an education such as the reader would have them have. I do not fear the nurse's assuming too much responsibility and taking the doctor's place under such conditions. If the doctor finds some of his occupation as a nurse gone he will surely find other fields.

Dr. E. Reynolds: I still see some cases of obstetrics in consultation and the mistake that seems to me to stand out most prominently is dilatoriness and neglect of physiological conditions until they become pathological. The modern trend of thought is that labor must be helped in some way. The average man subjects many patients to unnecessary suffering from lack of small aids in the earlier stages.

Dr. J. G. Blake: The point of the paper that impresses me most strongly is the necessity for a school of midwives. In our smaller towns we need a certain number of educated midwives and in our cities too they would be most valuable. The Italians, for instance, depend largely on midwives. I have seen many bad cases of sepsis among them due to the ignorance of the midwives they were forced to employ.

Dr. Englemann: The questions that the reader has brought up are extremely important. We are now to face face with the peculiar condition that in midwifery the mortality is greater in private practice than it is in hospitals. This is partly due to lack of proper nursing. The question is how to obtain that nursing. A very small proportion of people can pay for nurses such as the reader suggests. The foreigners who cannot possibly pay three dollars a day for a nurse have a right to proper care and any move that will replace the midwife whom apparently we are going to lose is a move in the right direction.

Dr. Worcester: In summing up I can only say that I am sorry Dr. Higgins refuses to assent to my proposition that in normal cases the nurse is more important than the doctor.

I cannot claim the honor of conversion that Dr. Stone ascribes to me. I must have failed to make myself plain, as I have changed my views in no way. I see no hope whatever in attempts at educating a low grade of nurses. I agree that the proper education of midwives would be a most excellent thing, but I feel that their day is past. Their place, can, however, be taken by a system of visiting student nurses who will know when to call in help. I believe it is perfectly possible to educate the nurse to the point of recognizing when the time has come to call in help.

I am living in a community where no woman, however poor, has not a nurse when she is confined — women who never in their lives before had a doctor on such occasions. This is accomplished by the student nurse system, she working under a competent superior. I cannot help thinking that much of our difficulty of coming to an agreement comes from our not recognizing the great differences between the classes of patients nurses are called upon to attend. The rich can have the finished product — the poor can have the student nurse, who will eventually be much better trained than the finished nurse of to-day. Is it or is it not an advantage to the people at large to have the whole business of midwifery in the hands of physicians? There are not enough self-sacrificing doctors to do this as it should be done among the poor. The student nurse will. I believe if there is a large body of well-trained student nurses, ready to send for help at the proper time, it will be a great gain to both the community and the nurses themselves, and, furthermore, such student nurses eventually will become thoroughly equipped obstetrical nurses.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Proceedings of the Thirty-First Annual Meeting, Held at Washington, D. C., Oct. 26, 27, 28, 29, and 30, 1903.

(Continued from Vol. CXLIX, No. 27, p. 739.)

HUMAN AND BOVINE TUBERCULOSIS.

Dr. M. P. Ravenel, of Philadelphia, made some remarks on this subject. During the past year, interest in the question of the relation between human and bovine tuberculosis, has been unabated, and several papers of interest have been published bearing on the subject. In America, Drs. Theobald Smith and Gideon Wells had isolated cultures of the tubercle bacillus from human sources having the characteristics and virulence of the bovine organism. A number of new cases had been reported of accidental infection of man by bovine material, the most important of which was that of Troje, which appeared able to withstand the most severe criticism.

A young butcher in good health, and with no hereditary taint, wounded his left forearm slightly while working on a tuberculous cow. The wound healed under treatment, but six weeks later showed signs of inflammation, and a tubercle formed on the internal face of the elbow. There were two small fistulæ on the forearm and enlargement of the ulnar and axillary lymph glands. A month later the middle forearm was covered with granulations which steadily increased in area, and, in spite of treatment, at the end of two months assumed the character of lupus. Histological examination at this time proved the tuberculous character of the disease. Two years after the injury Troje found an abscess which extended into the deep muscular layers. The pus contained tubercle bacilli and the tissues showed typical tuberculous lesions. Some months after the glands of the left axilla and subclavicular space were extirpated and proved to be tuberculous. All possibility of infection from human sources was excluded by Troje.

Much interest attached to the report made by the Commission of the Imperial Sanitary office of Germany. In all their tests pure cultures were isolated and used for inoculation. Cultures

were obtained from 39 sources, 23 of which were adults and 16 children. There were 19 cases of pulmonary tuberculosis, 4 cases of bone tuberculosis, 2 cases of cervical adenitis, 1 case of genito-urinary tuberculosis, 6 cases of miliary tuberculosis and 7 cases of the digestive tract. Of the 39 cultures examined, 19 produced no lesion in cattle, 9 caused a slight enlargement of the glands of the shoulder, without tendency to generalization, 7 a somewhat more marked involvement of this gland, while 4, all obtained from children, caused a generalized infection. Two of these 4 cases were described as miliary tuberculosis, beginning from a bronchial adenopathy and a mesenteric adenopathy respectively, while the remaining 2 cases were cases of intestinal tuberculosis. The cultures from the two last showed a very intense virulence for calves. The Commission pointed out that 2 of these 4 children did not die of tuberculosis, hence it was concluded that in only 2 out of 39 cases were they able to say that infection with the bovine tubercle bacillus had caused fatal tuberculosis in man.

PROFESSOR ORTH placed a different interpretation on these results. He held that the seven animals which showed marked involvement of the lymph glands of the shoulder should be considered as infected with human tuberculosis; that the infection was not more grave proved only that in cattle as in man, tuberculosis might undergo spontaneous cure. Of the 39 cultures studied, 11, or 28%, were virulent enough to infect cattle.

The author felt that the genetic unity of the human and bovine races of tubercle bacilli, as well as their inter-transmissibility, had been definitely demonstrated. It had also been proven that a certain proportion of persons, chiefly young children, met their death through infection with the bovine tubercle bacillus, but the knowledge at hand did not enable him at present to define the extent of this danger.

CHARACTERISTICS OF THE STEGOMYIA FASCIATA WHICH AFFECT THE CONVEYANCE OF YELLOW FEVER.

DR. H. R. CARTER of Baltimore, Md., read a paper on this subject.

Among the special characteristics of the Stegomyia which affected its role as a carrier of yellow fever are:

(1) Its distribution.

This is, generally, between Lats. 43 N. and 43 S. on the coasts and low plains of Africa, Asia and the adjacent islands; Australia and the Mediterranean basin of Europe.

It is also general on the eastern coast of America from 38 N. to 35 S. Lat. On the west coast it is found at Panama and Guayaquil and its existence is implied from Guayaquil to Acapulco.

In the United States it is general on the coast and low plains of the Southern States, except Maryland.

(2) That it is conveyed by vessels indefinite distances (from Cape Town to Savannah Quarantine); in much greater numbers and more often by sail than by steam vessels.

(3) That it lives a long time — one hundred and fifty-four days being recorded by Guiteras of an infected insect.

(4) That once having acquired the power of transmitting yellow fever it retains it apparently as long as it lives — fifty-nine days being recorded.

A consideration of the four postulates above will render it advisable to safeguard the tropical countries of the east when communication is opened up between them and American ports infected with yellow fever, preferably by freeing the American ports of yellow fever.

(5) That it propagates preferably in artificial containers, but will propagate in pools where such containers are not available.

(6) That in America it has been reported only in the vicinity of human dwellings and seems here not to be a sylvan, paludal or campestral mosquito.

From (5) and (6) the war against this insect in America should be waged about the houses of men, and especially against water in artificial containers. The introduction of a water supply, piped to every house so as to do away with cisterns and water jars, is the most important measure of sanitary engineering to free a town of this mosquito. Next to this is a system of drainage by covered drains to carry off the rain water and prevent pools. Cesspools are not objectionable on this score.

It unquestionably hibernates in the United States either as adult, larva or egg, but if the infected adult hibernates, either a very large proportion of them die, or else the infecting parasite must generally die in the hibernating mosquito. The first seems more probable.

(7) It is essentially a house mosquito, and is inclined to stay about the premises where it has fed. Hence the greater safety of the wholesale district of an infected city as compared with the residence portion.

(8) It does not feed in the dark or in bright sunlight. Therefore, in bright daylight or at night without artificial light are the safest times to be in an infected place.

(9) The cycle of the yellow fever parasite in the mosquito before it can be conveyed to men is generally, in hot weather, about fourteen days or over. Prior to the accomplishments of this cycle (once called the " extrinsic incubation of yellow fever ") the mosquito cannot convey this disease.

(10) It is probably usually conveyed aerially less than 100 yards. In Havana the infected insect is believed to be never aerially conveyed 250 fathoms — 1,500 feet — from the Havana shore.

The direction of the prevailing wind during the day influences its aerial conveyance.

THE EFFECT OF LEMON JUICE IN THE MIXTURE KNOWN AS LEMONADE UPON TYPHOID POLLUTED WATER.

DR. WILLIAM G. BISSELL, Buffalo, New York, presented a paper on this subject. The investi-

gation, he said, was prompted by a newspaper statement purporting as coming from a board of health in one of the leading American cities, that lemon juice in lemonade would render typhoid polluted water safe for drinking purposes. Three different methods of testing were tried: (1) By infecting water with typhoid and adding lemon juice. (2) Infecting glass rods with typhoid and placing them in lemonade. (3) Infecting silk threads and placing them in the lemonade. Culture tests with the first method were faulty. The conclusions drawn were: (1) That lemonade cannot be depended upon in this rôle. (2) That this method of sterilizing typhoid polluted water should be discouraged.

AN EMERGENCY CULTURE MEDIUM FOR USE IN THE ROUTINE DIAGNOSIS OF DIPHTHERIA.

Dr. William G. Bissell, Buffalo, New York, stated in this connection that not infrequently laboratories will run short of their amount of Loeffler's blood serum. The following mixture can be prepared inside of three hours and answers as a good substitute: two parts whole eggs, thoroughly beaten up and 1 part of the 3% dextrose bouillon. Material after being solidified can be autoclaved at 6 pounds pressure.

REPORT OF COMMITTEE ON BACILLUS TUBERCULOSIS IN MAN AND ANIMALS.

Dr. Mazyck P. Ravenel of Philadelphia said that in summing up the available evidence, the Committee felt that there was strong ground for believing in the genetic unity as well as the intertransmissibility of the human and bovine races of the tubercle bacillus.

They considered that it had been positively proven that a certain proportion of persons, chiefly young children, met their death through infection with the bovine tubercle bacillus, but the knowledge at hand did not enable them at present to define the extent of this danger.

STUDIES OF MEDIA FOR THE QUANTITATIVE ESTIMATION OF BACTERIA IN WATER AND SEWAGE.

Mr. Stephen D. Gage and Mr. George O. Adams of Boston, Mass., offered a joint paper which stated that in a report from this laboratory at the Buffalo meeting, figures were presented showing that by simplifying the usual culture media, higher counts of bacteria may be obtained, and that the counts on a new medium, Nahrstoff agar, were much higher than on the usual media. These studies have been continued, and while not completed, certain points are presented for consideration. In standard gelatin or agar, the beef broth is the most fertile source of variation, the amount of the nutrient matter in beef-infusion made by the usual method varying through wide limits. Of the two best-known commercial peptones, Merck's and Witte's, higher bacterial counts are obtained on media made with the latter. Studies of plain agar made with the various kinds of natural water show that in the majority of cases the bacteria naturally present in the given water will develop in greatest numbers in a medium made with the same water. The salts naturally present in commercial agar have a detrimental effect, greater numbers of bacteria developing on media made with agar from which the natural salts have been washed out. Greater numbers of bacteria will develop on media made without glycerin than on the same media containing glycerin. With pure cultures of different kinds of bacteria on standard gelatin, agar or "Nahrstoff" agar the highest counts were obtained, with the species studied, on gelatin and the lowest on "Nahrstoff" agar. A reduction of the amount of "Nahrstoff" in "Nahrstoff" agar from 1% to .5% results in a considerable increase in the bacterial counts with various waters. When cooked in acid or alkaline solution the albumoses of "Nahrstoff" undergo certain changes in composition which render them better food material for bacteria than is the commercial product.

Studies of the efficiency of water filters in removing bacteria when estimated by counts on different media show that there is a considerable variation between the various media, the ratio between the numbers of bacteria in the raw water and in the effluent being affected by the period of incubation, the reaction and the composition of the media. With standard gelatin and Lawrence agar the ratio was less variable between different lots of gelatin.

The writers recommend that a standard nomenclature be adopted for the various culture media, the names used to express, as far as possible, the composition of the media.

(To be continued.)

Recent Literature.

A Text-Book of Operative Surgery, Covering the Surgical Anatomy and Operative Technique involved in the Operations of General Surgery. Written for students and practitioners. By Warren Stone Bickham, M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Philadelphia. New York, London: W. B. Saunders & Co. 1903.

This book is planned to present to the student and practitioner the surgical anatomy and technique involved in the operations of general surgery; to present in these operations the best technique of modern surgeons with a brief summary of the descriptive and surgical anatomy of the structures involved.

The volume is divided almost equally in two Parts:

Part I. The operations of General Surgery. This includes the operations on the arterial, venous, lymphatic, nervous, osseous, and muscular systems, joints, tendons, ligaments, fasciæ, bursæ, amputations and excisions.

Part II. Describes the operations of Special Surgery classified by regions anatomically, *viz.*, operations on the head, spleen and spinal cord, neck, thorax, abdomino-pelvic, male and female genital organs, hernia.

The author considers that operative surgery is largely applied anatomy; that operative technic is more or less perfect as the knowledge of surgical anatomy and its application during actual operative work is more or less perfect. For this reason surgical anatomy is a conspicuous feature.

In the arrangement of the work in presenting each group of tissues or operations (Part I), or each organ (Part II), the following system is adopted: (1) Surgical anatomy of the region or organ. (2) Surface form and landmarks. (3) General surgical considerations. (4) Instruments required. The above being introductory to specific operations, which latter are considered under the following headings: (1) Title of operation. (2) Description of operation (including its general indications). (3) Preparation of patient. (4) Position of assistant. (5) Landmarks of operation. (6) Incision for operation. (7) Steps of operation. (8) Comments.

In the description of technic the "Incision" receives a separate heading to emphasize its importance. Under "Operation" the various steps are given in paragraphs marked by numbers in heavy type, each paragraph indicating in a general way some change in technique or stage of the operation. The name of the originator of an operation when known is given with its title.

The clinical aspect of the subject is only briefly considered and as a rule with the general consideration of a group of operations rather than specifically in connection with each individual one.

The book is a handsome octavo volume of 984 pages illustrated by 559 excellent cuts which are practically original, and reproductions of specially hand-made drawings. They are well chosen, show unusual clearness, many also great artistic skill. It is satisfactorily illustrated.

Again the author has confined himself strictly to his title, viz., operative technique of general surgery and the operations of specialties, as well as the general considerations usually presented under the title of "Principles of Operative Surgery, Anesthesia, etc.," have been ignored. It is strictly a manual of operative work.

The specific arrangement of the subject is apparently original with the author. It is an excellent one and is systematically observed throughout the volume. The surgical anatomy is fully but concisely given with the operative details. The list of operations selected is a full one and includes practically all those at present in practice, even the most recent. It is fully "up to date" and represents the work of the most noted modern surgeons.

One feature is noted which might perhaps save mental effort on the part of the reader in connection with the illustrations. An illustration is much more readily understood if the explanatory notes are directly connected with it rather than referred to by number or letter. The former method is more graphic and has been adopted with advantage by some of the best books on operative surgery, notably Kocher's.

Taken as a whole the book is distinctly a valuable contribution to surgical literature. It represents a vast amount of careful work and technical knowledge and Dr. Bickham indeed has merited praise and congratulations on the success of his efforts. It is an interesting, instructive manual to the student, and one which he will find quite "solid" reading; while for the surgeon in active practice it forms a valuable résumé of operative work.

A Textbook of the Diseases of Women. By THOMAS A. ASHBY, M.D., Professor of Diseases of Women in the University of Maryland; Consulting Gynecologist to the Mt. Hope Asylum, to St. Agnes Hospital and to the Hebrew Hospital of Baltimore, etc. pp. 661. 233 illustrations. Baltimore: Williams & Wilkins Company. 1903.

As setting forth the personal experience of the author this volume has a certain definite value to the practitioner of medicine; as a textbook it does not reach the high standard of the best of the recently published works on this subject.

A narrative style, an absence of logical arrangement of subjects and crude illustrations give the book the appearance of an amplified syllabus of lectures to students rather than a carefully arranged, comprehensive treatise.

Figure 207, page 576, marked "The Miculitz Drain" (an unusual spelling of Mikulicz, by the way) does not show the gauze handkerchief, and the cord extending through the center of the gauze packing is apparently attached to nothing at the bottom of the pelvis.

In the description of Emmet's operation for laceration of the perineum, page 243, the author inserts a figure taken from Emmet's "Principles and Practice of Gynecology," published in 1884, illustrating Emmet's first operation, now long since discarded by its originator. It is not surprising that the original figures on the succeeding pages give an erroneous impression of the modern Emmet operation. Presumably the printer is to blame for the legend under figures 108 and 109, page 244, which reads, "Emmet's Operation for Complete Laceration," as the figures depict incomplete laceration.

Few modern authors think it necessary to insert in a textbook a diagrammatic representation of the "perineal body," page 31, and we seldom find nowadays a chapter on "Pelvic Hematocele."

The William & Wilkins Company have produced a well-bound book, printed in clear, large type, on heavy paper.

THE BOSTON

Medical and Surgical Journal.

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THE TRANSMISSION OF PLAGUE.

A FURTHER valuable statement on the question of the transmission of plague comes from the Board of Health of Sydney, Australia, being the official report for 1902. In a previous contribution to the subject Dr. J. Ashburton Thompson, chief government medical officer at Sydney, maintained that the epidemic of plague in 1900 was caused neither by direct communication with the sick nor by dispersion of infected articles nor by place infection. The report before us confirms and amplifies the results then obtained.

Regarding the relation of the rat to the spread of epidemic plague evidence heretofore gathered goes to show merely that both the rat and man are susceptible to an identical infection. It is merely a matter of conjecture that plague is primarily a disease of the rat, that it is ordinarily communicated from rat to man, and that man and the rat under ordinary conditions are reciprocally infective. In other words, the coincidence of the appearance of the disease in man and in rats has been observed, but the causal relationship has not hitherto been established. In the report of 1900 it was held as a justifiable hypothesis that plague-rats constituted the sole source of infection. Further investigation seems, however, to have shown that given plague-rats and man with the disease, it is necessary to find an intermediary host capable of conveying the infective agent from rat to man. It is a far-fetched supposition that the infection might be directly conveyed from the rat to man.

In the report of 1900 it was noted that Simond had suggested two years before that the intermediary might be furnished by the flea or bed-bug. The evidence, however, at that time, was not sufficient to establish this claim, which later investigation has shown to be worthy of serious consideration. The steps by which this conclusion was reached form an interesting study in the investigation of epidemic disease. It was found, when special attention was attracted to the matter, that, although the presence of plague-rats appeared necessary to human infection, contact with these rats was certainly not necessary. It was forthermore shown that plague-infected rats in a building did not lead in many instances to infection of the inhabitants. It was likewise observed that when plague-rats and plague in man occurred simultaneously it was usual for but one person of the household to be attacked. On the other hand, it was noticeable that persons coming together in the same place of employment, though living in widely separated localities, were likely to be infected in common.

Admitting the necessity of a penetration of the human epithelium in order that infection might take place, it followed from these observations that an intermediary host would explain the incidence of the disease under the conditions named. The flea best answered these requirements. Granting this, it appeared that many of the difficulties of interpretation of the spread of the disease were removed. It was found also that the species of fleas which infested rats did not infest man, but that they had no repugnance to him. They will feed on human blood if hungry. This also explains the fact that several, although not all, persons under the same conditions may be infected. The flea, having left the plague-rat, may on the one hand never reach a man, and on the other may reach him at a time when its hunger is not sufficient to induce it to bite an unaccustomed host.

From the foregoing observations Dr. Thompson is led to conclude that Simond's hypothesis of the flea as intermediary host best explains the phenomena of plague as seen at Sydney. In reaching this conclusion he maintains rightly, we think, that he is offering certain facts of observation which strongly tend to uphold his opinion. Much naturally remains to be done before the hypothesis may be unreservedly accepted. For example, it is desirable to show that the flea may be able to communicate the virus many hours, or even days, after it has received it, a matter which may be determined only by direct laboratory experimentation.

The advice given in 1900 as to the manage-

ment of epidemic plague is repeated with renewed significance in this report. It runs as follows:

"The promise of safety for the future lies neither with attempts to prevent the importation of plague-rats (which must fail from time to time), nor with attempts to exterminate the rats infesting the locality to be defended (which we have learned is practically impossible), though both of these measures have their valuable uses, but in habitually excluding rats from inhabited premises. This, manifestly, is a defence which can be set up successfully by local authorities; it requires persistent effort, but involves hardly any expenditure of municipal funds."

This most suggestive investigation is of a part with several which have appeared within the last few years regarding the transmission of epidemic disease. It bears a striking analogy to the studies recently made on so-called spotted fever, in which the gopher and the tick were shown to take part in the transmission of the infection. Such an explanation as this offered by Dr. Thompson concerning the spread of plague seems eminently reasonable from our present point of view, and will no doubt in a very short time be adequately substantiated or definitely disproved.

REPORT OF MASSACHUSETTS HOSPITAL FOR EPILEPTICS.

THE report of the Massachusetts Hospital for Epileptics, dated 1904, is before us. During the comparatively short time of its existence this institution has been doing an increasingly active work in the care of epileptics in this state, and there is now reported a steady advance in the amount of property held and in capability of caring for the inmates. The work of the hospital has increased to such a degree that a third assistant physician has been appointed.

In addition to completing and furnishing several buildings, it has been possible to purchase a farm of three hundred acres located on a hillside directly opposite the present buildings. It is proposed to erect on this land two suitable buildings for the accommodation of sixty patients who are to be separated from the others to do the special work of the farm. This plan will also avert the overcrowding of the present buildings, which is always imminent.

The number of patients in the hospital for the year ending Oct. 1, 1903, was 45 in excess of the preceding year, an increase of about 12%. This has led to a certain overcrowding, and the trustees in their report protest firmly against the unfortunate increase in the number of patients without a corresponding increase in accommodation. They maintain, rightly we think, either that proper accommodations be provided or else that patients should not be admitted, a policy which has not always been carried out in the institutions in this state.

Attention is also called to the fact that no adequate provision is at present made for epileptic children now in the state. Although no definite decision has as yet been reached, it seems probable that the trustees will decide that it is advisable to provide for these children at this institution. No further appropriation is asked this year beyond the ordinary one required for the current expenses of the institution, on the ground that the trustees consider it desirable to complete and perfect work already undertaken rather than burden themselves with an immediate enlargement of its scope. The admirable work which this institution is doing in caring for one of the most unfortunate classes in the community should be generally known. In addition to merely caring for the bodily needs of the patients, systematic investigation of a high chracter is being prosecuted, which will undoubtedly in time lead to conclusions of positive value regarding the care and treatment of the disease. We note in the report that a laboratory is recommended. This certainly should be provided in the interests of present and future patients and of scientific medicine at large.

DISTRIBUTION OF INSANITY.

DR. WILLIAM A. WHITE, Superintendent of the Government Hospital for the Insane at Washington, has recently made a statistical study of the distribution of mental disorders in this country. In making his investigation he has apparently not been led by the usual methods, has had no preconceived ideas, and has allowed the facts which he has observed to speak for themselves. Particularly in the study of the causes of mental alienation he very correctly thinks that the subject is far too complex to be elucidated by mere statistical inquiry. Temperature, altitude and physical factors generally are not sufficient to give an explanation.

It appears from his study, published in the *National Geographic Magazine*, that New England has more insanity in proportion to population than any other part of the country, and that the

proportion grows steadily less as one goes either South or West, with the one exception that the Pacific Coast states show a proportion almost as high as that of New England. Leaving out of account this exception, Dr. White finds that the cause of the fact is to be sought in density of population and in the general struggle for means of subsistence, together with the predominance of mental work in more thickly populated regions.

The people of the West are as a rule hardy and commonly free from the exciting causes of mental disorders, whereas in the South the negroes are proverbially relatively exempt from such affections. To explain the apparent exception to the general rule, as seen in California, Dr. White finds that the Pacific Coast has not yet fully recovered from the gold fever of '49, that it also suffers from the effects of immigration, and that the seductions of intemperance and vice have been particularly conspicuous in that part of the country.

This investigation, so far as it is a statement of observed facts, is of very great interest, but we are inclined to agree with Dr. White in his opinion that the subtle underlying causes of mental disorder are so far below the surface that definite conclusions must be reached with caution.

TUBERCULOSIS IN NEW YORK POLICE DEPARTMENT.

At a meeting of the Board of Health held Dec. 30 a resolution was adopted to the effect that all members of the police and fire departments who were found to be the subjects of pulmonary tuberculosis should be suspended from active duty. This action was taken in consequence of a report from Dr. E. T. E. Marsh, chief surgeon of the Police Department, that seventeen members of this department were suffering from the disease in a stage dangerous to their associates. It was explained by President Lederle that while such suspension might seem a hardship for those affected with tuberculosis, it was really in their interest, as well as that of their comrades. To these unfortunates it afforded the one chance of recovery, while others were protected from possible infection. The closeness of the association in which policemen and firemen are obliged by the nature of their duties to pass a considerable part of their time renders tuberculosis especially dangerous to their companions, unless they take precautions more minute and more nearly constant than can reasonably be expected from them.

MEDICAL NOTES.

Herter Lectures of the Johns Hopkins Medical School. — Under the foundation for a lectureship, made by Dr. and Mrs. Charles A. Herter of New York in 1903, it is announced that Professor Paul Ehrlich has been chosen to deliver the first series of lectures. The object of the lectureship is to promote a more intimate knowledge of the medical research of foreign investigators.

New Eye and Ear Infirmary. — Plans have been completed for a new Eye and Ear Infirmary in Newark, N. J., which will be erected on Central Avenue, near Washington Street, at a cost of $60,000.

Oysters a Cause of a Typhoid Epidemic. — As a result of their investigations regarding the cause of a recent outbreak of typhoid fever in that city, the health authorities of Orange, N. J., have arrived at the conclusion that it was due, not, as at first supposed, to a contamination of the water supply, but to the consumption by the persons affected of oysters procured from infected beds.

Centenarians. — The death of Mrs. Mary Holmes Fuller, at Palatine Bridge, Va., at the reputed age of one hundred and one years, is announced. Robert C. Harper, said to be one hundred and four years old, also died last week in Minneapolis.

New York and New England Association of Railway Surgeons. — At the thirteenth annual meeting of the New York State Association of Railway Surgeons, held at the Academy of Medicine, New York City, Nov. 12-13, 1903, a vote was taken and unanimously carried to change the name of the association to New York and New England Association of Railway Surgeons. This change is expected to greatly extend the work of the association.

French Congress of Climatotherapy. — The first French Congress of Climatotherapy and Hygiene of Towns will be held at Nice from April 4 to April 9, 1904. Professor Chantemesse has been named president, with Professor Renaut (Lyon), Professor Grasset (Montpellier), Professor Calmette (Lille) and Dr. Balestre (Nice) as vice-presidents. The announced discussions will take up five questions: The Climate of the French Mediterranean Coast; Adaptation of the Individual to Climate; Influence of the French Mediterranean Coast Climate on Tuberculosis and Tubercular Patients; The Influence

of Climate on the French Mediterranean Coast on Rheumatism and on those subject to Rheumatism; Disinfection of Towns. Special facilities and rates will be granted to members of the congress and their families.

CHICAGO'S HEALTH. — Chicago's Health Commissioner reports for the week ending Jan. 2: Including the 587 theater-fire deaths, accounted for by the Coroner's office and the Police Department, but not yet reported at the close of the year to the Bureau of Vital Statistics of the Department, the total deaths for 1903 will number 28,940 instead of the 28,353 given in the appended statement of mortality for the year. This will increase the death rate from 15.04 to 15.35 per thousand of population. Deaths from violence were already more than 12% in excess of the average for the period since the census year 1900; but these 587 theater deaths swell the excess to 41.5% over the yearly average of violent deaths.

Even with this addition to the total mortality the death rate is 6% lower than the yearly average since 1892, although it is 8.2% higher than that of 1901 and 5.3% higher than 1902.

ANY comment on the features of the month or of the week would read like the veriest platitudes in the presence of the year-end horror — the inevitable aftermath of which has already begun in sudden death among those with crippled hearts and in dethroned reason among those of unstable nervous organization. All such should shun further excitement, keep away from crowds, and strive to forget.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Jan. 6, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 82, scarlatina 39, typhoid fever 8, measles 215, smallpox 0.

PUBLIC BEQUESTS. — According to the will of the late Mrs. Mary D. Converse of Malden, the Malden Home for Aged People receives $2,000; Roxbury Home for Aged Couples, $2,000; the Woman's Charity Club Hospital, Roxbury, $2,000; and the Malden Hospital, $2,500.

GLANDERS AMONG CAMBRIDGE HORSES. — In the annual report of Dr. C. E. Hadcock, inspector of animals for Cambridge, it is stated that there has been an alarming increase in the number of cases of glanders among horses in that city. During the year 60 horses have been quarantined, and 54 were shot. Action has already been taken toward disinfection and fumigation of possibly infected places.

FIRE IN TAUNTON INSANE HOSPITAL. — On the night of Jan. 4 fire broke out in the linen room of the west wing of the Taunton, Mass., Hospital for the Insane. Notwithstanding a considerable overcrowding of the wards, the patients were rescued. The loss is estimated at about $50,000, in which is included the autopsy room, the pathological laboratory and library.

BOSTON DEATH RATE FOR 1903. — The unprecedented low death rate of 17.70 per thousand of the population of Boston is reported for the year 1903. The death rate in New York for the last year was 18.19, a record which falls behind that of Boston by .49 per thousand.

BRIGHAM WILL UPHELD. — Judge Colt of the United States Circuit Court handed down a decision Dec. 30, by which the Peter Bent Brigham Hospital receives about $5,000,000. This decision is the outcome of an effort on the part of the heirs-at-law to overthrow the will on certain legal technicalities. Unless this decision of Judge Colt be taken to the United States Supreme Court, no legal difficulties will stand in the way of the building of the hospital. The trustees of the fund had already purchased part of the property acquired for the new Harvard Medical School buildings.

DEDICATION OF PEABODY HOME FOR CRIPPLED CHILDREN. — The New England Peabody Home for Crippled Children at Hyde Park was dedicated Dec. 29, with appropriate exercises. An added tract of land was given by Mr. Bleakie, giving the home a street frontage of 372 feet. Dr. R. W. Lovett in his remarks drew attention to the economic value of the surgical treatment of crippled children as being an ultimate relief to the state.

RHODE ISLAND HOSPITAL. — The annual report of the Rhode Island Hospital for 1903 makes the following statement: With an endowment of but $150,000, a portion of which was pledged to raise money for the completion of these buildings, this Hospital opened its doors in October, 1868. In the succeeding year it treated 112 patients; whereas during the year ending Sept. 30, 1903, 4,150 patients were treated, and this is an increase over the preceding year of 663, or 19%. The average daily number of patients was 232, against 211 in the year preceding, an increase of 10%.

Public Institutions Conference. — At the quarterly meeting of the Public Institutions Conference, held at the Mayor's office last week, it was reported that the number of persons admitted to various state and municipal institutions through the registration department was 980, being an increase of 79 over 1902. Twenty more than the preceding year were sent to Tewksbury, and four more to Long Island. It is recommended by the trustees of the Long Island institution that an x-ray apparatus be installed as soon as possible with special reference to the study of rheumatic affections. Both of the city insane hospitals are overcrowded, with a total of 569 patients.

NEW YORK.

President of Board of Health. — Dr. Thomas Darlington, who has been appointed by the new mayor President of the Board of Health, and who is the first medical man to occupy that position during the existence of the department in its present shape, is the most prominent physician in the Kingsbridge district of the Borough of the Bronx. He is a graduate of Princeton, and received the degree of M.D. from the College of Physicians and Surgeons, New York, in 1880. He was a charter fellow of the Medical Association of the Greater City of New York, and belongs to most of the prominent medical societies of the city. Among the positions held by him are those of attending physician to the New York Foundling Hospital, consulting physician for diseases of children to the French Hospital, and attending physician to St. John's Riverside Hospital, Yonkers. In view of the large infant mortality which usually attends the summer season in New York, and of the constant increase of contagious diseases among the children of the tenements. it will no doubt be of considerable advantage to have at the head of the Health Department a man who is especially identified with the subject of pediatrics.

Increase in Insane. — The statistics of the New York State Commission in Lunacy show that there has been an increase in the number of insane in the state during the past year amounting to about 40% above the normal. Their observations indicate that there is a relation between the increase of insanity and the development of industries which is sufficiently pronounced to render doubtful the popular belief that the isolation and monotony of farm life are conducive to insanity, especially among women.

Bequests by Joseph Stickney. — Among other charitable bequests in the will of the late Joseph Stickney of New York are $5,000 each to the Wilkesbarre (Pa.) City Hospital and the Margaret Pillsbury General Hospital, Concord, N. H.

Entering Class, Columbia Medical School. — In the annual catalogue of Columbia University, just issued, it is shown that in the School of Medicine the entering class is the smallest for many years, but the average quality of the class is described as the best in the history of the college, 60% of the students holding degrees, and over 90% having had at least one year of college training before beginning their medical work.

Pneumonia. — Pneumonia has been added to the list of diseases in New York which must be reported to the Bureau of Contagious Diseases as communicable. This action has been precipitated by the somewhat marked increase in deaths from this disease.

Speculative Evidence. — Some two years ago Florence Briggs of Buffalo, while traveling on what is known as the Belt Line of the New York Central and Hudson River Railroad Company in that city, received an injury to the spine in consequence of a collision. On the trial of an action for damages which she brought against the company, expert physicians testified that her injuries were such that several of her internal organs might be affected, and, in the end, permanently. The Court of Appeals has now decided that such evidence was speculative, and should have been excluded. " It is undoubtedly true," it is stated in the opinion, which is by Judge O'Brien, " that in an action to recover damages for personal injuries the evidence of experts as to future consequences which are expected to follow the injury are competent; to authorize such evidence, however, the apprehended consequences must be such as, in the ordinary course of nature, are reasonably certain to ensue. Consequences which are contingent, speculative, or merely possible are not proper to be considered in estimating the damages, and may not be proved. We think this rule of evidence was violated in this case, since the learned trial judge permitted to stand, for the consideration of the jury, evidence which was speculative and conjectural. Indeed, the medical experts in the case, upon the examination of the plaintiff's counsel, were permitted to state numerous things which might result as a consequence of this injury."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 26, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,785,156	1,321	363	23.77	23.24	3.78	3.10	1.06
Chicago . . .	1,885,000	514	146	18.48	27.03	2.92	2.72	1.36
Philadelphia	1,378,527	554	136	24.90	17.51	3.97	.18	1.80
St. Louis . .	618,481	—	—	—	—	—	—	—
Baltimore . .	533,712	183	56	21.85	19.12	3.27	1.63	.54
Cleveland . .	427,731	—	—	—	—	—	—	—
Buffalo . . .	387,994	—	—	—	—	—	—	—
Pittsburg . .	351,745	139	—	25.90	26.61	5.03	1.44	7.19
Cincinnati . .	335,140	—	—	—	—	—	—	—
Milwaukee .	315,307	—	—	—	—	—	—	—
Washington .	295,103	—	—	—	—	—	—	—
Providence .	191,230	77	22	22.00	18.20	3.90	6.50	—
Boston . . .	603,163	193	49	22.28	19.17	1.04	1.04	1.55
Worcester . .	132,044	40	14	12.50	12.50	—	10.00	2.50
Fall River .	115,549	42	14	19.04	28.57	—	11.90	—
Lowell . . .	101,959	26	4	15.40	15.40	3.85	—	—
Cambridge .	98,639	26	11	26.35	11.55	7.70	—	3.85
Lynn	72,497	20	3	5.00	10.00	5.00	—	—
Lawrence . .	69,766	22	7	13.63	18.18	—	—	—
Springfield .	69,389	23	1	4.35	26.09	—	—	4.35
Somerville .	68,110	26	5	19.25	11.55	—	—	—
New Bedford	67,198	22	5	31.81	36.36	4.54	9.09	4.54
Holyoke . . .	49,286	23	6	21.74	8.70	—	—	8.70
Brockton . .	44,873	10	1	10.00	—	—	—	—
Haverhill . .	42,194	14	1	14.28	21.42	7.14	—	—
Newton . . .	37,794	8	2	—	25.00	—	—	—
Salem	36,876	15	4	—	—	—	—	—
Malden . . .	36,286	15	7	20.00	13.33	—	—	—
Chelsea . . .	35,876	12	4	8.33	—	—	—	—
Fitchburg . .	33,069	—	—	—	—	—	—	—
Taunton . . .	33,656	12	—	8.33	16.67	—	—	—
Everett . . .	28,620	8	2	12.50	—	—	—	—
North Adams	27,862	9	2	22.22	—	—	—	11.11
Gloucester .	26,121	—	—	—	—	—	—	—
Quincy . . .	26,042	3	1	33.33	—	—	33.33	—
Waltham . .	25,198	3	—	33.33	—	—	—	—
Brookline . .	22,608	—	—	—	—	—	—	—
Pittsfield . .	22,589	5	1	—	—	—	—	—
Chicopee . .	21,031	4	1	—	50.00	—	—	—
Medford . .	20,962	3	—	—	—	—	—	—
Northampton	19,883	7	—	—	—	—	—	—
Beverly . . .	15,302	3	1	—	33.33	—	—	—
Clinton . . .	15,161	9	1	11.11	—	—	—	—
Leominster .	14,806	—	—	—	—	—	—	—
Newburyport	14,478	10	2	10.00	—	—	—	—
Woburn . . .	14,300	4	1	25.00	25.00	—	—	—
Hyde Park .	14,175	5	1	40.00	20.00	—	—	—
Adams . . .	13,745	8	2	12.50	—	—	12.50	—
Attleboro . .	13,677	—	—	—	—	—	—	—
Marlboro . .	13,609	5	2	20.00	—	—	—	—
Melrose . . .	13,600	3	—	—	66.67	—	—	—
Westfield . .	13,418	2	1	—	—	—	—	—
Milford . . .	13,129	—	—	—	—	—	—	—
Revere . . .	12,722	2	—	100.00	—	—	—	—
Framingham	12,584	6	1	16.97	16.67	—	—	—
Peabody . .	12,179	—	—	—	—	—	—	—
Gardner . . .	11,928	—	—	—	—	—	—	—
Weymouth .	11,344	2	1	—	—	—	—	—
Southbridge .	11,268	—	—	—	—	—	—	—
Watertown .	11,077	1	—	100.00	—	—	—	—
Plymouth . .	10,739	—	—	—	—	—	—	—

Deaths reported, 3,439; under five years of age, 881; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 753, acute lung diseases 732, consumption 376, scarlet fever 45, whooping cough 15, cerebrospinal meningitis 7, smallpox 20, erysipelas 11, puerperal fever 6, measles 29, typhoid fever 52, diarrheal diseases 81, diphtheria and croup 111.

From whooping cough, New York 3, Chicago, 1, Philadelphia 5, Baltimore 1, Providence 1, Boston 3, Fall River 1. From smallpox, Philadelphia 14, Pittsburg 6. From cerebrospinal meningitis, New York 6, Chelsea 1. From erysipelas, New York 4, Chicago 1, Philadelphia 4, Pittsburg 1, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Dec. 12, the death-rate was 19.2. Deaths reported 5,553; acute diseases of the respiratory organs (London) 234, whooping cough 97, diphtheria 67, measles 121, smallpox 3, scarlet fever 30.

The death-rate ranged from 6.3 in Grimsby to 32.0 in Merthyr Tydfil, London 18.9, West Ham 16.1, Brighton 22.0, Southampton 14.2, Plymouth 26.5, Bristol 18.6, Birmingham 21.4, Leicester 15.4, Nottingham 18.9, Liverpool 24.0, Bolton 22.0, Manchester 17.9, Salford 18.6, Bradford 19.7, Leeds 19.8, Hull 15.7, Cardiff 18.1, Rhondda 18.7, Kings Norton 13.1, Sunderland 18.5.

METEOROLOGICAL RECORD.

For the week ending Dec. 26, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 20	29.66	39	54	24	91	97	94	S E	S	19	30	R.	R.	.60
M . 21	29.60	42	49	36	62	69	66	W	S W	24	7	C.	C.	.05
T. . 22	29.75	31	40	22	87	51	69	S W	W	12	16	O.	C.	.03
W . 23	30.11	28	36	19	63	58	60	W	S W	12	16	C.	C.	0
T. . 24	29.94	41	47	35	59	71	65	S W	S W	7	18	O.	R.	T.
F. . 25	29.56	39	45	33	73	83	78	S W	W	8	10	O.	F.	T.
S. . 26	29.59	18	33	4	89	69	79	N E	N W	6	16	N.	C.	.23
☞	29.74		43	25			73							.91

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 2, 1904.

R. O. MARCOUR, assistant surgeon. Detached from the "Franklin" and ordered to the "Dixie" for duty with the Panama Marine brigade.

J. M. BRISTER, assistant surgeon. Detached from the "Isla da Cuba" and ordered home.

J. A. GUTHRIE, passed assistant surgeon. Ordered to the "Franklin."

G. F. FREEMAN, passed assistant surgeon. Ordered to the naval station Olongapo, P. I.

RECENT DEATHS.

AUGUSTUS D. RUGGLES, M.D., of New York, died on Dec. 27, from carcinoma affecting the liver and other organs. He was sixty-three years of age and was graduated from the medical department of the University of Pennsylvania in 1862. During the Civil War he served with distinction in the medical corps of the Army of the Potomac. He practised for many years in New York, and among the positions of honor which he had held was that of vice-president of the New York County Medical Association. He was one of the organizers and incorporators of the Medical Association of the Greater City of New York and was its treasurer from the founding of the society in 1899 up to the time of his death.

ANTON EIDENBERG, M.D., of New York, died in St. Luke's Hospital in that city, of pneumonia, on Dec. 31. He was eighty-six years old, and was a native of Hessedarmstadt, Germany. He was graduated at Giessen in 1846, and also received the degree of M.D. from the New York University in 1881. During the Civil War he was surgeon of the Eleventh New York Regiment. He had practised in New York for over fifty years, and was long an attending surgeon to St. Luke's Hospital.

JOHN MARTIN OTTO, M.D., of New York, a graduate of the University Medical School in 1888, died in the New York Hospital on Dec. 29, from a fracture of the skull received in a fall.

BOOKS AND PAMPHLETS RECEIVED.

Blood-Pressure in Surgery. An Experimental and Clinical Research. The Cartwright Prize Essay for 1903. By George W. Crile, A.M., M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co., 1903.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hale, M.D., assisted by H. R. M. Landis, M.D. Vol. IV. December, 1903. Illustrated. Lea Brothers & Co., Philadelphia and New York.

The Community and Tuberculosis. By Beverley Robinson, M.D., of New York. Reprint. 1903.

The Genesis of Epilepsy. By Louise G. Robinovitch, B. ès L. (Paris), M.D. Reprint. 1903.

The Medical Epitome Series. Organic and Physiologic Chemistry. A Manual for Students and Practitioners. By Alexius McGlannan, M.D. Series edited by V. C. Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

Original Articles.

CARDIAC DISPLACEMENT.[1]

BY ARTHUR K. STONE, M.D., BOSTON,

Physician to Out-Patients at the Massachusetts General Hospital.

CARDIAC displacement, while not a subject of distinctly practical importance, nevertheless is one which has aroused considerable interest during the past decade, especially in France, where there have appeared a number of excellent papers calling attention to the general erroneous ideas which have been held regarding the subject. As most of what has been said by the members of the Lyons school is also applicable to much of the teaching hereabouts, it has seemed worth while to review the subject and to add my observations, which are based on the study of more than nine cases of permanent cardiac displacement, in addition to a number of cases seen in the ordinary course of acute pleurisy and pneumothorax.

Besides Sir R. Douglas Powell very few other observers have reported more than two or three personal observations, and the total number confirmed by autopsy or X-ray examinations is remarkably small. The most recent and complete résumé of the subject is to be found in the Thesis of Alaux, a student of Professor Pic of Lyons, and doubtless reflects accurately the teaching of that school. It is unfortunate that in his desire to give credit to Professors Bard, Pitres and Pic, he has neglected to quote the correctb servations of Sir Douglas Powell, made in 1869 and 1876. Powell's results were obtained from the study of a goodly number of cases, not only clinically but also at the autopsy table. And to these accurate observations are added experimental studies serving to explain the conditions found. Not only has Powell's work not been quoted by the French writers, but it has also been forgotten by recent English clinicians, who have speculated much regarding the position of the displaced hearts they had observed, when a reference to these papers would have answered all their questions. Symes of Dublin in 1892 disputed Powell's statement as made in his book on the "Diseases of the Heart," evidently without looking up the work on which Powell based his assertions.

The subject of displacements of the heart naturally divides itself into two general divisions, the congenital displacements of the heart, and the acquired or pathological displacements. About the former probably there has arisen the greater amount of dispute, while the latter has given rise to the greater amount of erroneous teaching.

The question at issue is, does such a condition as congenital dextrocardia without an accompanying transposition of all the viscera in the body exist unless accompanied by other malformations of the heart? Cases of transposition of all the organs of the body have been reported from time to time since the first observation by Petrus Servius was made in Rome in 1643. (Collection of cases by Gruber.) As a part of this process the heart is involved in the general transposition and points towards the right, the aorta also arching to the right instead of the left, with the valves of the heart changed to meet the new condition of things; that is, the mitral valves are found in the right ventricle, which is thick-walled and of course communicates with the aorta, while the left ventricle is thin-walled and has tricuspid valves, and communicates with the pulmonary artery. In every way the hearts in the transposed cases are reversed from the ordinary conditions, that is, they are mirror hearts.

It has been supposed that in a number of cases where the heart either actually or apparently pointed to the right, without any transposition of the other viscera, there was present a congenital dextrocardia. It has been assumed that there was a mirror heart also present, the conditions holding as in cases of complete transposition of all the organs. The reported cases of dextrocardia are few in number, and the autopsies when dextrocardia has been suspected are very few indeed.

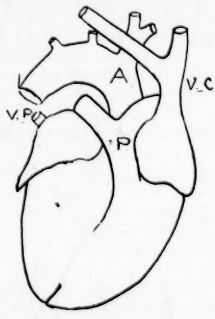


FIG. 1. — Mirror heart.

Of the authentic cases, first of all come a small group where the condition has been noted at the

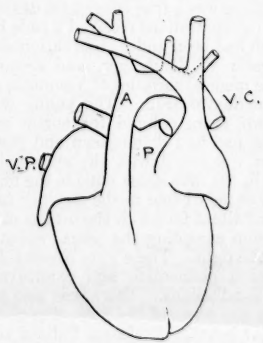


FIG. 2. — Inverted heart. Aorta arches to the left.

[1] Read at a meeting of the Boston Society for Medical Improvement, Nov. 16, 1903.

autopsies of young infants, and here the dextrocardia has practically always been accompanied by malformation of the heart itself, most frequently showing itself in absence of the ventricular septum. There is, however, so far as I can find, no case on record of true mirror heart. Graanboom, however, has a fine case of congenital dextrocardia, which was found in a man of thirty-three, who, dying of nephritis, had never had any manifestations arising from cardiac deformity, although at the autopsy there was found a much narrowed aorta. Here, the axis of the heart was from left to right; the apex, however, was not far beyond the edge of the sternum, although in life the strongest impulse was at the right mammary line. From the right ventricle, which was thick-walled, arose the aorta, but the valves were tricuspid instead of mitral. This is the nearest approach to a mirror heart that has been reported. There are, however, said to be similar malformations to this on record, without any deviation in the usual axis of the heart.

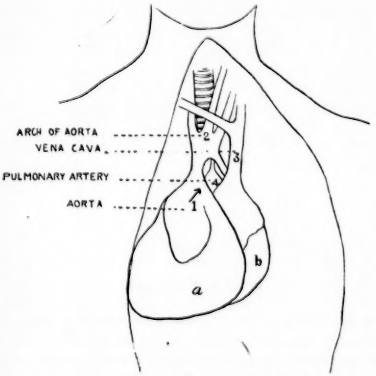


FIG. 3. — Graanboom's case. Like Fig. 2.

Occasional cases have been reported where from clinical observation it has seemed during life that there was a true congenital dextrocardia, but such interpretations received a rude blow in a case which had been under observation since 1888 by Professor v. Bamberger, and demonstrated before the medical societies of Vienna as a case of congenital dextrocardia. The young woman of twenty-two years entered for aortic regurgitation. She had had rheumatism and pneumonia. The heart was found with the apex pointing to the right in the fifth space outside the nipple. In 1896 this patient came to the autopsy table, and Professor Paltauf found all the organs in the normal position excepting the heart, which pointed towards the right. There were present, however, an adhesive pericarditis and extensive pleuropericardial adhesions. There was also a depression upon the dome of the liver, due to the position of the heart. Professor Paltauf refuses to recognize the case as one of congenital origin, but considers that it was consequent to the unrecognized inflammatory processes, which had given rise to the conditions found. He further states that he has met with pericarditis in a seven-months' fetus, and therefore concludes that changes in the heart's axis may possibly be started by such processes, and not be due to real change in the development of the organ.

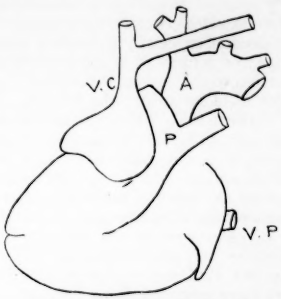


FIG. 4. — Heart drawn to the right.

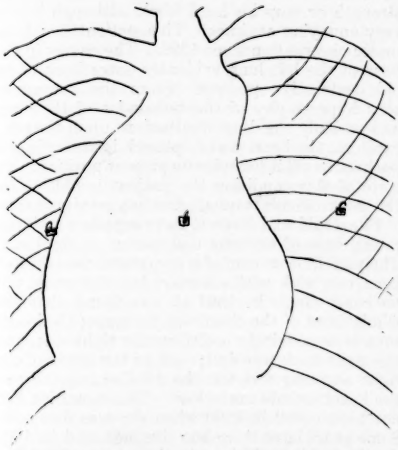
That it is often difficult to get any history of really extensive inflammatory processes I had illustrated in one of my own cases.

Here the heart was in about median position with the apex behind the sternum. The patient declared that he had never been sick, and no questioning could make him acknowledge the fact, and yet when examined with the fluoroscope the whole lower part of the left side of the chest was found to be in shadow, showing that at some time there had been an inflammatory process which was quite sufficient to account for the position of the heart. Other of my patients have only given a history after prolonged and careful cross-examination. From the literature and my own experience I should quite agree with Garel (1902), who refused to diagnose a case as congenital dextrocardia where the apex was undoubtedly to the right, but where a right-sided pleuritic effusion had also been present, as was demonstrated by the shadow showing in the fluoroscopic examination.

One of my cases, however, may possibly come among the rare congenital cases of dextrocardia. The patient is a young man aged twenty-three, who was seen first in 1901. He gives no history of thoracic disease. Since the age of thirteen he has had attacks of epilepsy, much more severe during the past seven years. The hospital record states that the apex is in the fourth right interspace, 8 cm. from the median line. The other organs are in a normal position.

I. A recent careful re-examination shows the greatest cardiac impulse as above stated. With the fluoroscope the heart is much more median than would be expected, and no sign of an apex is to be seen. The portion of the heart at the place of the maximum pulsation is evidently the base. The general position of the shadow shows distinctly that the apex lies behind the sternum.

The space occupied by the cardiac shadow is large. The whole of the right side is slightly hazy when compared with the left side. All that can be asserted is that there is no history to be obtained of inflammatory disease, nor is there any distinct evidence of such having taken place. It is about the picture that a case like that reported by Graanboom would be expected to present. On the other hand, the position, in general that of a heart displaced by mechanical means, and the slight general shadow of the right side of the chest, make all positive assertions in regard to the case impossible at present. All cases where the diagnosis has been



Displaced heart. Congenital (?). Accurately traced from an x-ray photograph. *a*, *b*, *c* show position of the nipples and center of the sternum.

made on the clinical examination alone must be excluded in the light of autopsies and the conditions revealed by the use of the fluoroscope.

My own conclusions are only slightly different from those of the Lyons school, namely, that almost all the known cases of dextrocardia have been accompanied with evidences of extensive malformation of the heart; that no real case of mirror heart, true dextrocardia, is on record. That all cases where the heart does point towards the right, if there are traces of pleurisy or pericarditis having been present, must be considered as acquired conditions unless proved otherwise by autopsy. Nevertheless, the case of Graanboom's shows that a congenital dextrocardia, though not of the mirror heart variety, can exist and give no symptom of defective heart-structure.

II. Displacements or dislocations of the heart due to pathological conditions are to be divided into three general groups: the first due to simple disturbance of the normal atmospheric equilibrium existing in the chest; and the second due to the distorting action of adhesions of an inflammatory origin. The former represent the unrestrained movement of the heart in the presence of pleural exudate, pneumothorax, or of a large cavity within the lung, or any other condition causing sclerosis or shrinking of one lung; the latter, the dislocations due to adhesions forming in the course of inflammatory processes which involve the pleura and pericardium.

The third group is associated with the presence of an aneurism or a new growth within the chest so developing as to displace the heart. With this last group this paper will not deal.

A case where adhesions played an active part in causing dislocation of the heart first called my attention to the subject of cardiac displacements. The patient, a woman of forty-seven, came to the House of the Good Samaritan with the history of having had a double pneumonia which had attacked the bases of both lungs. At entrance the pneumonia in the left lung was said to have been unresolved, although several weeks had elapsed since the attack. I found on examination dulness at the right base, with modified vesicular respiration and a few fine râles. At the left base there was flatness and absence of respiration. After observation for a few days I was tempted to see if I could not discover pus with an aspirating needle, but very careful examination disclosed in several places small areas of distant vesicular breathing, and I concluded that there was no distinct pocket of pus present. At this time the apex beat was noted as being situated 8 cm. to the left of the sternum. The patient gradually gained in strength and was up and about the ward, but very little improvement could be detected in the respiratory signs at the base of the left lung. After a temporary absence from the hospital I found on my return that the patient's condition still remained about the same. To try and get a better respiratory condition hydrotherapeutic measures were adopted. The patient was placed in a bath-tub and cold water was dashed over her by the nurse. It was hoped in this way to cause forced inspiration and to bring into action portions of the diseased lung, This was repeated three times during the week. Preparation for the transfer of the patient to a convalescent home having been arranged, a final examination was made. At the first glance at the chest the heart's impulse was seen to be in the axillary region. There was resonance where before there had been the normal area of cardiac dulness, and the apex impulse was 16 cm. from the median line. A fluoroscopic examination showed clear light transmission occupying the normal area of cardiac shadow, while all trace of the heart itself was lost in the general shadow obscuring the base and outer portion of the left chest.

It seems to me that what had occurred is as follows: Owing to the great gasp which the patient gave at the first application of the water, a portion of the lung which had been previously contracted expanded and escaped from its adhesions and pushed into the place of least resistance; ballooning up, as it were, and pressing the heart outwards so that it was pushed into the space it

now occupies. There was no real disturbance from the movement of the heart more than the severe shock which the patient laid to the first application of the cold water, but I am inclined to attribute the feeling of discomfort to the movement of the viscera then taking place. For some time there were no adventitious sounds to be heard over the heart, but later a soft blowing murmur developed, and a year later some irregularity was noted. The sputum was repeatedly examined for bacilli of tuberculosis without finding any present, although some cough and expectoration continued. At my request Dr. Chandler of Medford examined her in March, 1903, and reported no murmur or irregularity, and the cardiac impulse 16 cm. to the left of the median line.

The great interest in this case lies in the sudden movement of the heart and the little corresponding shock or discomfort occassioned by the seemingly violent displacement of the viscera within the chest. Very few indeed of the patients whose cases are to be found reported in the literature of the subject experienced any inconvenience from the malposition of the heart. Of sudden movements, the one most nearly approaching the one reported above was the case of a medical student (Cochez) who had tuberculosis, and was known to have had a cavity in the right lung. One night on retiring he heard and felt the heart beating on the right side, and about a week later, when he was again examined by his physician, the heart was found dislocated to the right. There was no discomfort noticed by this specially intelligent patient to tell exactly when the movement took place, and yet it probably occurred during the day in which it was noted. Moutard-Martin had also a case where the change was noted by the house-physician probably soon after it occurred, but as there was no discomfort no report was made to the visiting physician.

In the case of a young man examined by me in 1902 where I found the heart displaced upwards and to the right side I was told that the last time he was examined the upper right side of the chest gave a very hollow sound, and that he was informed that there was a cavity there. Here again there was no discomfort to tell when the marked cardiac displacement took place.

Another case illustrates how marked dislocation can exist and yet give no symptom either at the time of its occurrence or discomfort later, although the patient may lead a laborious life. The patient's heart was not in its usual position, and in the place occupied by its normal dulness there was resonance and a clear transmission of light when examined with the fluoroscope. The greatest cardiac impulse was to be located in the left mid-axillary line, and the sounds were to be best heard in the back, mingled with friction sounds and sounds indicating a cavity in the lungs.

This patient has no history pointing to the time of the dislocation. Indeed the whole process was discovered in the course of a routine examination of the chest for the purpose of explaining the cause of cough and expectoration which occasionally, for the past few years, had given him much discomfort. The patient was a stone-cutter. No bacilli of tuberculosis have been found in his sputum, though the sputum has been examined from time to time for several years. Very close questioning finally brought out the fact that about 1886 he had been so weak and sick from a cough that he had given up work for a month or two, but that he had speedily recovered and had even forgotten the fact, only recalling it on talking the matter over with his family. The cough for which he had come to the clinic had appeared only in the past few years and had not been of such a nature as to cause him to lose strength or stop his hard work, although it was very annoying at times. This patient has been under observation since 1899. The cavity in the base of the left lung evidently dates back to an old destructive process. From the compensatory hypertrophy of the remainder of the lung, and possibly the drag of adhesions upon the pericardium, the heart was displaced downwards and backwards till it occupies its present position. In spite of this condition the patient is able to do the most difficult manual labor in a granite quarry.

Fitzgerald and Everett have reported an interesting case of extreme dislocation of the heart. The patient, a woman of sixty, stated that she had been very sick with pleurisy, but this could not be confirmed. In 1894 it was found that the whole front of the chest was resonant; the heart-sounds were faintly heard on the right side, and the right back was dull; and at the angle of the right scapular was felt the cardiac impulse and the heart sounds were clear. This condition had not been noted in 1890 when she was first seen. Some years later there was dyspnea and in 1900 she died of bronchitis. At the autopsy the lobes of the left lung were found to be practically anterior and posterior rather than upper and lower, as the lower lobe extended from the diaphragm to the apex behind, while the upper lobe extended across the whole front of the chest and was adherent to the costal pleura of the right side of the thorax in the mid-axillary line. The right lung was completely retracted.

The heart's position was nearly vertical, and the right ventricle was so placed that it must have been the portion of the heart giving the cardiac impulse at the angle of the right scapular.

The recent case of Garel (1902), where the heart, following an extensive right-sided pleurisy, had been drawn, so that the apex beat was in the fifth interspace in the right mammary line, is another instance showing the distortion possible from adhesions.

In the many cases of so-called dextrocardia following pleurisy and penumonia the heart is held displaced to the right by adhesions developing in the course of an acute inflammatory disease and either drawing or securing the displaced heart in its unusual position.

None of the above-mentioned patients, and none of my other patients with permanently displaced hearts from whatever cause, have had any

uncomfortable symptoms referable to the heart. Nor in any of the many reported cases has the displaced heart given trouble in virtue of its unusual position. And only a few patients of the reported cases have realized at all that the heart was displaced.

While the movements of the heart influenced by the presence of adhesions and the presence of cavities or sclerosed lung tissue with emphysemata of the remainder of the lung or of the other lung are often erratic, on the other hand the movements of the heart caused by the presence of fluid or air in the pleural cavity, or by the contraction of one lung in whole or in part, are practically subject to certain definite rules or laws when uncomplicated by adhesions.

It has been a matter of surprise to find out how little was definitely known about this condition of frequent occurrence. The number of accurate observations reported is very small, even since the introduction of the x-rays as an aid in the examination of the chest. The post-mortem examinations have been few in number, and many of these make no note of the really important fact, — *i. e.*, the exact position of the heart, — being simply content to make the statement that the heart was found as in life to the right. Many pathologists have never seen the condition or at least never considered it of sufficient importance to have made mental note of any cases they may have seen. One of the reasons why it may have escaped notice is that the heart if not held by adhesions will often slip back into its proper position when the chest is open and the pressure within the pleural cavities has been made equal. Such cases are on record, where the heart has been demonstrated during life to be to the right of the sternum, and at the autopsy been found in its normal place, and the space which it has occupied on the right side over a cavity in the lung been plainly visible. Powell also found that the heart when pressed towards the right tended to sag back into place unless held in position by long pins thrust through the heart. Some pathologists who are inclined to think that the backward movement of the heart cannot take place so rapidly, explain the fact that they have not noted the condition oftener as due to the relaxation of the diaphragm after death, and the consequent greater capacity of the pleural cavity. Thus the heart is drawn back to its original position again.

The anatomists consulted have been decidedly surprised to learn that movements of the heart were at all common and had not considered the matter, only it had seemed on general principles that the base was the immovable portion of the heart, while the heart's apex appears to be freely movable. Probably the erroneous idea which has been held by so many that the heart in case of a left-sided exudate became reversed, with its apex pointing to the right, has been due to the manner in which the heart has been seized by the pathologist, and drawn upwards and to the right at post-mortem examinations after the opening of the pericardium.

The movements of the heart in the presence of effusion, or air in one side of the chest, depend on the following anatomical and physiological conditions, which may be modified by certain pathological conditions which may be present:

The heart, enclosed in the pericardium, hangs from the great vessels at its base and lies between the two pleural cavities, which are vacuum chambers. In these vacuum spaces are elastic, expansile bags, the lungs, in connection with the outside air. If a small wound in the chest-wall occurs, the lung does not at once collapse, but rather the lung seems to put forth almost intelligent efforts to cover the opening and prevent the ingress of air. Even in cases where the lung has been compressed into a small compass by the presence of an effusion the active expansive power of the lung asserts itself as soon as the exudate is withdrawn, as is shown by the force with which the pus flows from an opening in the thoracic wall in the cases of empyema. This active participation of the lung in tending to expand from its internal resiliency is denied by some observers, who believe that all the expansion is due to coughing, which distends the lung by the closing of the glottis and the consequent increase of the pulmonary pressure. These men would deny that any of the movements of the heart were dependent on anything besides the ordinary laws of physics, and consequently that the active resiliency of the lungs does not have to be taken into consideration. However this may be finally settled, the anatomical position of the heart is of the greatest importance as regards the forces leading to its movements. The heart rests on the dome of the diaphragm, enclosed in the pyramidal pericardial sac whose base is continuous with a part of the fibers of the upper portion of the diaphragm, which thus makes a firm flooring on which the heart is bedded. From this base the sac of the pericardium has its origin, being held in position by three supporting ligaments: (*a*) the suspensory, which is attached to the body of the third dorsal vertebra; (*b*) the cervical, which merges in the aponeurosis of the neck, which in turn is attached to the hyoid bone; (*c*) the sterno-pericardial, attached to the anterior face of the sternum and the first rib.

Any weight, like an exudate, in the cavity, tends to depress the diaphragm and to put these ligaments on the stretch and thus presents a firm resisting wall so that the fluid shall not press directly upon the heart and hinder its action.

If the effusion is on the right, the wall of the pericardium becomes a rigid partition, behind which the auricles have protection. If on the left side, the ventricular portion becomes tense and vertical, and thus presses against the apex, moving it laterally till in the extreme it goes behind the xyphoid. When this point is reached the right portion of the pericardium is put on the stretch and opposes further lateral movement. The extent to which the pericardium allows the apex to move is towards the left about 5 to 6 cm. and towards the right about 12 to 13 cm.

The movements of the heart uncomplicated by

pleural and pericardial adhesions are to be divided into three groups:

(1) Those brought about by the presence of fluid in the pleural cavity.

(2) Those caused by pneumothorax.

(3) Those due to the presence of large cavities in the lungs, disturbing the equilibrium of the inter-thoracic pressure.

Although the laws hold good for effusions on both sides of the chest, yet as the displacements to the right following left-sided pathological conditions are more marked and more interesting, these alone will be considered.

A glance at one or two diagrams will show how triangular shaped is the outline of the heart — how its right border is nearly vertical and the lower border nearly horizontal, while really only a small apical portion projects beyond the mass known as the base of the heart. The amount of

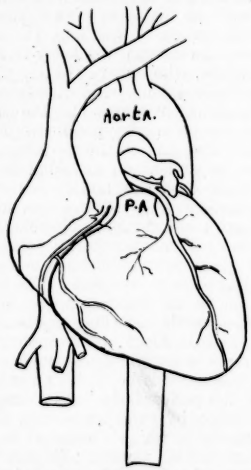


FIG. 5.— Heart from the front (from Quain).

the heart's bulk that lies to the right of the descending aorta makes it probable that any general pressure exerted on the heart would tend to thrust it *en masse* to the right, flattening the arch of the aorta rather than reversing the heart and twisting the vessels. This is what happens in left-sided exudates. When the fluid amounts to about 1,000 cc. pressure is exerted on the heart lying in the pericardium and it is pushed to the right *en masse*. In so doing the apex is depressed and rotated forwards, the heart's shadow in the fluoroscope losing its triangular appearance and becoming simply a mass in the center of the chest, with nearly vertical sides. In two of my cases, where the heart had become retained by adhesions in this position, I have been able to see the shadow of the apex of the heart spring outwards and slightly upwards from the dense central shadow with each contraction of the heart. This showed that when the heart was the smallest it tended to return to its exact normal position.

The movement of the apex can be traced across the left chest by the cardiac impulse, and in large exudates it finally disappears under the xyphoid. Sometimes the apical impulse can still be felt in

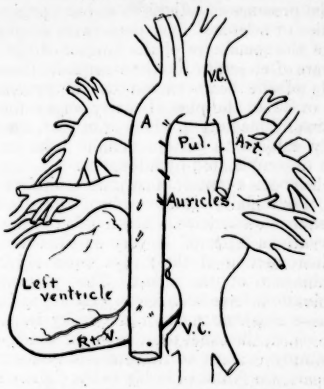


FIG. 6.— Heart from behind (from Quain).

epigastrium and the apical sounds can be distinguished with the stethoscope as being below the xyphoid.

At the same time that this is taking place on the left side of the chest, the movement of the basal mass of the heart brings the right auricle and the aorta closer and closer to the right thoracic wall, and cardiac impulse appears in the third space from the latter, and in the fifth or fourth space to the right, usually in or about the mammary line. Following one's first impression, that the place of the greatest cardiac impact and the loudest heart's sounds is the location of the apex, it has seemed to many clinicians that the apex in these cases of left-sided exudate was directed to the right, and at the place above stated. This too followed the teachings of Wintrich. The sudden deaths which have occurred in the course of pleurisy have been explained as due to the twisting of the great vessels, taking place in the inversion of the heart. This classic explanation has been followed almost implicitly in France, and as late as 1901 almost all the important text-books of medicine are credited by Alaux as having adhered to this teaching. In Germany, however, modern teachers for the most part have not taken this position, but have said that the heart was pushed or drawn to the right.

Professor Bard and others of the Lyons school have done much in France to call attention to the erroneous teaching, and as a result, for the past ten years cases have been reported which show more careful study than formerly and practically all of these have borne out the positions taken by Bard, Pitres and others.

In England, Powell as already said, from a large postmortem experience, recognized that it

was very rare for the apex to pass the sternum, and that the impulse seen in the region of the right nipple was always caused by the base of the heart.

Of the American teachers, Osler, as would be expected, makes the definite statement that he has never seen in simple effusions and pneumothorax the apex pointing to the right. Fitz speaks of the movement of the heart as a whole. Cutler in Loomis-Thompson sums up the whole question very neatly when he writes of " the cardiac impulse to the right, corresponding with the base and not the apex, the heart not changing its parallel." Musser and Eichorst also make correct statements. Cabot, Anders and Vierordt speak or give diagrams of the apex pointing to the right, and many of the other writers do not mention the matter at all.

As has been said above, the number of post-mortem examinations in cases of displaced heart is surprisingly small, and even when made the position of the apex is often not noted. Since the advent of the x-rays as an aid to accurate diagnosis many clinical cases are still reported, and in medical centers too, without any fluoroscopic examination to confirm the auscultation and general impressions. All the autopsies, however, that I have been able to find where any statement of the heart's position has been given, and all cases where the x-rays have been called into service, have (with a few exceptions to be noted later) shown the apex of the heart always pointed to the left.

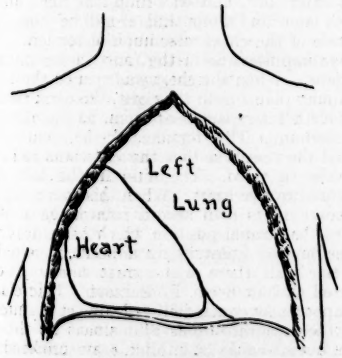
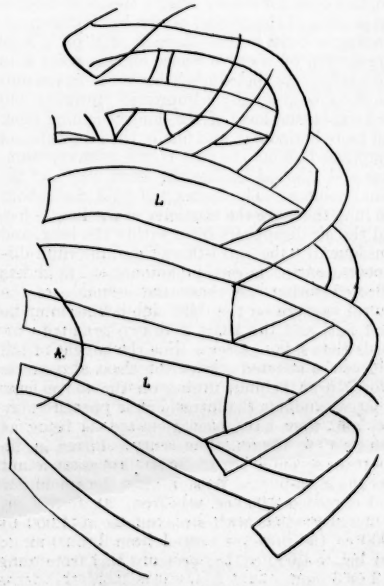


Fig. 7.— Garnier's case.

Carrière states that he has studied carefully with regard to the position of the apex twenty cases of left-sided pleuritis, and finds that in all there was no evidence of rotation of the heart. These observations have been supplemented by experiments upon the cadaver, and in none of these, as also in the experiments of Powell, Bard and Pitres, was there any sign of torsion even though the fluid put into the chest amounted to eight liters. The experiments and observations on pleuritic exudates made it seem that with about 700 cc. of fluid in the chest, the heart remains at its normal place if a vertical position is maintained, but that if the patient lies on the right side the heart's impulse moves from 2 to 4 cm. inwards. With fluid amounting to 1,000 to 3,000 cc. the apex becomes lowered and approaches the median line as described above, and as the fluid passes 2,500 cc. the apex passes beneath the xyphoid.

One of my first cases of displaced heart was a fine example of the fact that the base and not the apex gives the cardiac impulse on the right. The patient was a young girl with pulmonary tuberculosis of the right lung. The thin chest-walls made percussion very easy, and the house-officer who first saw her percussed triangular area of dulness on the right of the sternum which he called the apex. This was so distinct that he was not willing, in the light of his previous instruction, to acknowledge that it could be produced by anything else than the apex of the heart. However, the fluoroscope demonstrated the apex of the heart projecting just beyond the left border of the sternum, and the marked triangular dulness to the right was made by the base of the heart. The case was specially favorable to study, as the patient was a child, and then there was no thickened pleura and no exudate to obscure the field. The region about the heart was clear, so that the cardiac outlines were well defined.

In fluoroscopic examinations it must be borne in mind that a left-sided exudate will obscure the



Case of pneumothorax from the service of Dr. J. J. Minot. Left side of the chest. Traced from an x-ray photograph. A, shadow of the apex; L, compressed lung.

position of the apex, and that old pleuritic adhesions will cause such a shadow that the heart's position is often lost. But if there has been no disease upon the right side the general shape of the heart will show that the point of greatest impulse must be made by the base of the heart and not by the apex.

In an attempt to study the mechanics by which the heart is moved, it is well in the first instance to consider a pneumothorax. Here the air, gaining access to the whole pleural cavity, accumulates until the pressure within the cavity is equal or greater than the outside air. That this intra-thoracic pressure in the case of pneumothorax is great, there is no reason to believe. In the cases where the pressure has been studied, it has usually been from 3 to 7 cm. of water. In the single case I have had a chance to study the pressure has only been from 2 to 4 cm. of water, although in this case there was a marked displacement of the heart to the left. But to return to the mechanics of cardiac displacement: The left pleural cavity being filled with air, the lung is collapsed and the equilibrium previously existing between the two sides of the thorax is destroyed. There is now a vacuum-chamber only on the right side, and into that vacuum there is a tendency for the heart and its attachments to be both drawn and pushed, and unless hindered by adhesions it moves along the lines of least resistance already indicated.

Where an exudate is present the conditions are practically the same. As is well known, an exudate does not simply occupy the most dependent portion of the pleural cavity, but is drawn up, forming a layer on the thoracic wall on a level represented by a curve whose highest point is in the axilla. As the exudate increases in amount the lung is gradually compressed upwards and backwards, the level of the fluid becoming more and more horizontal, and finally the lung is found compressed about the root of the primary bronchus and jammed against the chest wall and the spinal column. The higher the fluid rises about the lung the more the elasticity of the lung is lost and the air disappears from within the lung, and consequently the intra-thoracic equilibrium disappears. After a certain amount of fluid has collected within the chest, the influence of the pleural vacuum on the right side begins to make itself felt, and the heart is drawn gradually towards that side. After a time the weight of the fluid in the affected side of the chest also exerts a force from behind, urging on the movement. In large exudates the intrathoracic pressure may rise, and they have been reported as being as high as 40 to 45 mm. of mercury. Pitres, in the reports of seventeen carefully studied cases, found that the intra-pleural tension when the amount of fluid exceeded 2,000 cc. was from 20 to 44 mm. of mercury; that with an exudate of 1,000 to 2,000 cc. the pressure ranged from 8 to 20 mm.; and below 1,000 cc. the pressure was from zero to 2 or 3 mm.

The amount of the pressure depends on a number of conditions, as for example if the diaphragm is weak and relaxed the amount of fluid may be large and the intra-thoracic pressure be small. On the other hand, with a consolidated lung the amount of the exudate may be small and the tension great.

The experiments in intra-thoracic pressure have been criticised by Bard as being inaccurate, from crude instruments and faulty technique, but as yet he had offered no accurate measurements, and what has been done may at least be accepted as showing approximately what takes place, there being practically the same element of error in all the observations. That there is intra-pleural pressure is obvious by the broad and even distended intercostal spaces which are frequently seen in large effusions. This pressure acts to give an accelerating push in addition to the suction exerted by the vacuum of the other side.

All those who of late have attempted experiments with the injection of fluids into the chest have been unable to produce any eversion of the heart, although very large amounts, even up to eight liters, have been used. Thus, Carriére, Pitres and Bard have maintained, reasoning from their experiments, that the rotation of the heart was impossible under any conditions. In addition, however, to the cases with adhesions or extensive right-sided effusion, already quoted, there has recently appeared a most interesting report by Lafforgue of displacement of the heart to the right, with inversion of the heart and bending of the great vessels. The case occurred in Algiers, where a native was stabbed in the back just outside the shoulder-blade. He bled but little externally, and was found at his home a month later, and a month later still he died. The left side of the chest was much distended. The cardiac impulse was in the fourth interspace to the right. When the chest was opened the heart was found pointing to the right, the apex behind the fourth interspace 3 or 4 cm. to the right of the sternum. The torsion of the heart had twisted the vessels so that the aorta was reduced in caliber a third. The fluid in the left side amounted to five liters. When this was removed the heart of its own accord rotated backwards toward the normal position, but was held at the border of the sternum by adhesions. On the posterior wall there was a firm fibrinous clot reported as 7 or 8 cm. in diameter. Here is a case apparently contradicting all the experiments and other accurate observations that have been made, but its cause is, I think, easy to interpret. The man bled profusely into the pleural cavity after the wound, and the large thick blood-clot must have pushed the heart upwards and held it there. Then as the immense exudate formed, it acted on an already displaced heart in such a way as to produce the torsion of heart and vessels.

In the third condition of displacement — when either there is a large cavity within the lung, causing a collapse of the surrounding wall, or any other cause, as syphilis, leading to a contraction of the lung tissue — there is left a void, and into this the organs of the sound side are aspirated. The heart passes into this cavity *en masse*, and greater

space consequently is given to the un-diseased lung which in turn takes on a compensatory hypertrophy, or emphysema. Special examples of this are to be seen in the diagram of Garnier's case and in the report of Fitzgerald and Everett's case quoted above. The movement of the heart in such cases as has been stated is often modified and accelerated by the presence of adhesions of the pleura of the shrunken lung to the pericardium.

Permanent but partial displacements of the heart are to be accounted for by the formation of adhesions to the pericardium before the heart has a chance to return to its normal position and are due to the slow absorption of the fluid.

In conclusion, it is to be remembered that in cases of displacement the heart tends to move as a mass to the right or left; that rotation is very rare, and accompanied when found by exceptional conditions, or brought about by the presence of contracting adhesions; that practically in all cases the visible cardiac impulse to the right of the sternum is caused by the base of the heart, and not by the apex; that extreme displacement may take place without the slightest discomfort to the patient; and that the sudden deaths occurring in the large pleuritic effusions are not due to the cardiac displacement.

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The work of the coroner in Philadelphia for 1903 exceeded that of any other year in the history of the office. The number of inquests was 3,357—553 more than last year. There were 58 homicides, 202 suicides, 94 deaths by drowning and 932 casualties. Among the latter were 254 on steam and electric railways. — *Medical News.*

INTERMITTENT HYDRONEPHROSIS — UTERINE FIBROID.[1]

BY M. H. RICHARDSON, M.D., BOSTON.

INTERMITTENT HYDRONEPHROSIS.

My first operation for intermittent hydronephrosis was performed on Nov. 11, 1896, and was published in the Transactions of the American Surgical Association for 1897. I showed this patient before the Clinical Society of the Massachusetts General Hospital and before the Massachusetts Medical Society in 1897. The operation, which I called ureteroplasty, corresponded in principle to the Heinecke-Mikulicz operation for stricture of the pylorus. The junction of the ureter and the dilated renal pelvis was incised longitudinally, and this longitudinal incision was sewed into a transverse line. The effects of the kink or sharp bend at the origin of the ureter was thereby overcome. In my first patient absolute cure followed.

I found this route for exploring the pelvis of the kidney so easy that I have used it a number of times since in preference to the usual one of going through the cortex for renal stone or for other reasons. The practicability of plastic operations upon the pelvis of the kidney and upon the beginning of the ureter was thus made apparent to me by a considerable number of explorations.

My second case of intermittent hydronephrosis is the one shown here to-night.

Mr. L. N. I., twenty-three years of age, machinist, came to see me on July 14, 1902, sent by Dr. Averill of Brockton. For six months he had had pain in the left side about two inches below the ribs. The longest time that he had been without pain was eighteen days. The pain was sharp in character, lasting for twenty-four hours, and sometimes for longer. He had been completely disabled for some six months.

I found a large, tender mass in the region of the left kidney. It was impossible to say whether the tumor was fluctuating or not. Examination of the urine was negative. At the beginning the temperature was normal. At my first examination the tumor seemed to me to be the spleen, and I supposed the case one of a splenic leukemia. Examination of the blood, made by Dr. Williams, showed nothing but a leucocytosis. Five days later the mass had entirely disappeared. The patient himself had noticed nothing wrong with the urine. There were no constitutional symptoms at any time.

On Oct. 13 I again saw this patient. The history during the summer had been about the same as before. I found in the left renal region a tumor which was without doubt a kidney, and I at that time advised an exploration. The diagnosis was intermittent hydronephrosis.

The operation was performed at the Deaconess Hospital on Oct. 16, 1902. An incision six inches in length was made, starting from the ribs over the site of the tumor and running downward and forward. Throughout this incision the external and internal oblique and transversalis were separated in the direction of their fibers. The peritoneal cavity was opened sufficiently for a thorough exploration of the right kidney and the other abdominal organs. The opening in the peritoneum was then sutured, and the left kidney examined. Though the pelvis of the left kidney was much enlarged and much thickened, it contained no stones. The diagnosis was clearly hydrone-

[1] Read at the Boston Society for Medical Improvement, Nov. 18, 1903.

phrosis, caused by a sharp bend in the ureter at its origin at the pelvis of the kidney. A careful dissection was made of the renal pelvis and of the ureter, to show exactly the relation of the parts and the cause of the obstruction. An incision about an inch in length was then made extending through the pelvis of the kidney and extending down half an inch on to the ureter. The middle of the incision corresponded to the sharp angle of continuity between the pelvis and the ureter. This longitudinal slit was converted into a transverse one by appropriate sutures. A small wick was placed at the line of suture on the left.

The patient made a good recovery, and in a month was entirely healed and perfectly well. He was able to return to his work.

In April he was taken with a severe attack of appendicitis, for which he was advised by Dr. Williams. It was very evident that the trouble was in the appendix. On June 4, 1903, I removed the appendix through an incision an inch and a half in length. Since that time he has been perfectly well.

The operation for hydronephrosis was a very successful one technically, and it has resulted in perfect relief to the symptoms. Whatever may have been in the very beginning the cause of the obstruction, the result was a kink-like or valve-like origin of the ureter. Once the obstruction became sufficient to cause dilatation of the pelvis of the kidney, then that obstruction became more and more complete, the distended pelvis increasing the sharpness of angle and pressing directly upon the ureter.

This origin is, perhaps, somewhat a matter of theory. If the obstruction is caused, or is continued, by the pressure of the dilated pelvis upon the ureter, it is hard to say how the distension is ever released spontaneously, for the pressure needed by the dilatation cannot but increase. In this case, as in the previous one and in the following one, the hydronephrosis was intermittent — a distension of the pelvis of the kidney attended by severe pain. This pain continues more or less severe until the pelvis is excessively distended. Then, for some reason, the urine begins to flow, the pelvis is emptied, the pain and the tumor disappear.

CASE II. The next patient whom I show here, a brother of the last one, has symptoms which are very much like those already related. This young man is twenty years of age. He has had in the region of the left kidney for five years what he calls "side-ache." The pain comes on suddenly and is followed by vomiting. At times he notices a swelling at the site of the pain, "as if the ribs were pushed out some." The pain is described as a heavy, continuous one.

This patient came to me on Aug. 29, 1903, saying that the last attack had begun twenty hours previously. It began suddenly and it ended suddenly. He does not have the pain all the time. Sometimes it comes every month; then he will go for weeks without any. He has noticed nothing abnormal about the urine, except that after the cessation of the pain of the last attack he passed more than usual; he has never noticed any blood; and there has been no retraction of the testicle.

The physical examination was negative; also the examination of the urine.

His next attack was in October. It was like the others, but not so severe. I found tenderness in the region of the spleen and in the greater curvature of the stomach. After careful study of this case Dr. Joslin made a diagnosis of intermittent hydronephrosis.

The last attack was a week ago. The patient came to see me during the attack. He was suffering great pain. I was unable to make out any definite signs. In this case the diagnosis depends upon the history, with intermittent tumor. The symptoms seem to me to justify exploration of the kidney, which exploration I shall make day after to-morrow.

FIBROIDS.

The danger of malignancy a strong indication for the removal of supposed uterine fibroids. — In the early days of uterine surgery the dangers of removing uterine fibroids were so great that we very properly hesitated to advise their removal, except for certain definite indications, such as pain, hemorrhage, rapid growth and pressure. There are many fibroids which neither grow rapidly nor cause pain, bleeding or pressure. In other words, they present none of the ordinary indications for operation; and in the earlier days, no such tumors would have been removed. The chief reason urged against the extirpation of uterine fibroids, or supposed uterine fibroids, was the danger of the operation. At the present time the danger of hysterectomy has been reduced far below the danger of the original operations for ovarian tumors. Practically all hysterectomies for uncomplicated fibroids prove successful. The mortality in the hands of experienced surgeons is about as low as mortality can be in any severe operation, whether performed in the abdomen or elsewhere. True, the safety of the operation is very largely influenced by the experience and skill of the operator. Indeed, I believe that there is no abdominal operation in which the result depends more upon careful asepsis, clean and swift dissecting, rigid hemostasis, and painstaking avoidance of the ureters. The uncomplicated hysterectomy in a strong woman of child-bearing age is certainly as safe as the normal childbirth — always, be it understood, in the hands of an experienced surgeon. Now that the mortality has been brought so low, it is evident that the range of indications is correspondingly widened. When the risks of a hysterectomy were deemed justifiable only in certain grave symptoms, then the dangers were naturally great. Now that the dangers are small, the indications should include symptoms of minor severity and of less danger to life and to health. One of the dangers — and one never seriously considered — is the danger of a wrong diagnosis. I have seen too many errors in diagnosis, even in the hands of the most experienced clinicians, to be willing to accept as final, without exploration, the diagnosis of even the most skillful. I look upon all pelvic tumors as being possibly malignant. It is true that in the great majority of cases a correct diagnosis can be made, and is made. It is quite as true, however, that in the minority of cases the diagnosis is not made and cannot be made. Has not the time come, in the treatment of pelvic tumors generally and uterine tumors in particular, when the danger of overlooking a possible malignancy vastly outweighs the danger of exploration? In other words, are we justified in the palliative treatment of pelvic tumors, even when

they are apparently benign, knowing the great difficulty — not to say the impossibility — of an absolutely accurate diagnosis?

Case I. I have two specimens to illustrate the importance of this subject. The first was from a patient of forty-nine who had been under observation for four years for a uterine fibroid about as large as a Florida orange. This patient had passed the menopause two years. On account of pain and flowing, operation was finally decided upon. I operated upon this patient on Oct. 24, 1903. The uterus contained a single fibroid about the size of an orange. In the lower segment of the uterus, about the cervix, were numerous masses apparently malignant, encroaching upon the uterine cavity and extending beyond the uterine tissues into the layers of the broad ligament. These masses were apparently entirely removed. Dr. Whitney pronounced the disease to be a uterine fibroid with extensive sarcoma.

I show the specimen and also the drawing by Mr. Aitken.

Now this patient was very properly watched and cared for during and through the menopause under the diagnosis of a simple fibroid. It was not, however, a simple fibroid; —it was a complication rare, it is true, but of the most serious nature. Although there had been every reason to think that this was a simple fibroid, it nevertheless had a malignant and almost hopeless complication.

I have seen a number of cases of uterine fibroid either associated with cancer of the cervix or complicated by malignant degeneration of its own tissues.

Case II. The next specimen is from the case of Mrs. O., a woman of seventy, a patient of Dr. Cook of Fitchburg. Four years ago this patient began to flow. The flowing would last for a month, say, and then stop. The pain, hardly worth mentioning at first, gradually became more frequent and more severe. The general condition was good.

I found a uterus enlarged to the size of an orange and filled with small fibroids. Abdominal palpation showed a tumor over the vagina like that of an anteflexed uterus, filled with small nodules, — the whole suggesting a bunch of grapes.

I operated to-day through the abdomen. By bimanual examination I could feel a mass of small tumors, intimately connected with the uterus and was almost sure that the whole was malignant. The uterus between my hands felt as if it were filled with fluid and with small hard masses. The feeling of fluctuation was, however, due to a large and very soft tumor, the remains of which can be seen in this specimen. The gross appearances of this mass seem to me rather in favor of a soft uterine polyp, a non-malignant growth; but I shall not be at all surprised to be told that the soft masses here are malignant and that the main body of the uterus is filled with fibroids. Whatever the microscope may show, this is a case in which the only possibility of cure lay in a total extirpation of the uterus.

It is only by the promptest surgical intervention that malignant tumors of the uterus permit radical cure. Whenever we postpone operation on uterine tumors — no matter how benign these tumors may seem — we are running a risk beside which the dangers of operation are but trivial. I have no hesitation in saying that the dangers of overlooking a malignant tumor — even in the hands of the most skillful and the most experienced abdominal surgeon — are much greater than the dangers of exploration are in the same hands, especially when the tumor is discovered in early middle life. The older the patient, of course, the more imperative is exploration, for the tendency to malignancy increases with age, just as, unfortunately, the dangers of operation increase.

SOME CASES OF INTUSSUSCEPTION.[1]

BY FRANKLIN G. BALCH, M.D., BOSTON,

Surgeon to Out-Patients at the Massachusetts General Hospital.

Dr. Edred M. Corner of London has published an article on intussusception in the November number of the *Annals of Surgery*, in which he writes at some length on the various forms which this obstruction takes. Among other conclusions he decides that the double intussusception is more common than the single. The ileo-colic colic variety occurs most frequently, the colic ileo-cecal variety being next in order. He considers the single ileo-cecal variety quite uncommon. In the hurry of operation in these cases it is not often observed which variety is present, and in the records of some of the cases which I have looked up, the variety of the trouble is not mentioned. As Dr. Corner's observation that the double variety is more common than the single one is not the generally accepted theory, it will be of interest to try to get more accurate information upon this point in future operations.

Personally I have operated for this condition but three times. One case has already been reported in the *Medical and Surgical Journal*. In that case the obstruction was wholly in the small intestine, and was due to invagination of jejunum into ileum. Fifty-six inches of necrotic gut were resected. The patient recovered.

The second case has not been previously reported.

I saw Edith F. in consultation with Dr. Arthur N. Broughton on the 30th of July, 1901. She was a baby of five and a half months, who had had acute symptoms for only ten hours. The mother said she had noticed a minute speck of blood several times lately, but there was no diarrhea, and the baby had been gaining steadily. The night before I saw the child she had seemed feverish and had cried a good deal as if in pain. At 3 A.M. she vomited. Later there was a large movement followed by two bloody stools. The large movement was offensive. The first part was constipated, the last part loose. When I saw the child at 1.30 she seemed in great shock. She was apathetic, with a weak pulse of 144 and a rectal temperature of 98·4. A mass could be felt below the umbilicus. A diagnosis of intussusception was made, and operation showed it to be of the enteric ileo-cecal variety. The invagination was readily reduced, partly by pushing the bowel up from the large intestine, and partly by traction on the small intestine. The end of the cecum had been invaginated, and the appendix was reddened, but not otherwise abnormal. It was not removed. A band of adhesions ran across the cecum. That was cut before it was observed just what its point of origin was, and search later to clear that doubt was impossible on account of the child's condition. The wound was closed by silkworm-gut sutures. Six days later the upper stitch cut out during a fit of crying. The bowel came out, but under ether Dr. Broughton replaced it, and drew the edges of the wound together with crepe lise and collodion. Recovery otherwise was uneventful, and the child is very well to-day. A striking thing about the operation was the fact that as soon as the invagination was reduced the condition of shock began to improve, and the child looked better when put to bed than just before operation.

Another case was operated upon at the Massachusetts General Hospital. Ralph E. F., six months old, was seen May 29, 1903, at 10.30 P.M. He then had a temperature of 101.5, a pulse of 158, and a white count of 48,000. He

[1] Read at the meeting of the Boston Society for Medical Improvement, Nov. 16, 1903.

had felt poorly for a week, but the acute symptoms dated only from the day before. There had been sudden severe pains with frequent vomiting, and on the afternoon of the second day, the vomitus had become brown. The bowels had not moved for forty-eight hours, except a small movement after an injection. The child looked very sick. Nothing was felt by rectum. The abdomen was slightly distended, but not tender except over a tumor in the right side. There was considerable free fluid in the abdominal cavity. On opening the abdomen, several ounces of clear, slightly brownish fluid welled up. An intussusception was found in the ileo-cecal region, but the exact variety is not noted in the record. The bowel was dark and necrotic, so a mass about six inches long was resected. The ends were brought together by a continuous catgut suture, and a second layer of Lembert sutures, also of catgut, was placed outside. The mesentery was closed by an over and over suture of catgut. This controlled the hemorrhage very rapidly and effectually, while at the same time it approximated the cut edges. The patient never rallied after the operation, and died in about seven hours. An examination of the anastomosis after death showed a perfectly tight joint.

Since 1897 there have been ten cases of intussusception at the Massachusetts General Hospital. One of these was apparently reduced during the motion incident to bringing the child to the hospital, and making the necessary examination. The symptoms had been typical, and there was a tender tumor in the region of the cecum when the child was examined. This tumor also disappeared.

The other nine cases have all been operated upon. Three of the nine patients operated upon were over twenty-one years of age. Two of these recovered and one died.

Including my two cases which were operated upon outside the hospital, we have a total of eight cases in children. One of these was sixteen years old, and another three years old. Both lived.

In three of the cases that died resection was done. In one an artificial opening was made into the bowel, as the intussusception extended through the whole of the large intestine and could not be reduced. The fifth case died after the bowel had been reduced after opening the abdomen. In the one case that lived the invagination was reduced at operation.

As far as it is possible to draw any conclusion from such a limited number of cases, it would seem that the mortality decreases rapidly with the age of the patient. In children under one year of age intussusception is usually fatal. Very early operation offers the best chance of recovery.

THE BICYCLE AS A THERAPEUTIC AGENT.

LUTHER HALSEY GULICK, M.D.,

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FEW cases are more exasperating than those which, without organic disease, are constantly demanding treatment for either real or imagined functional disorders, nor does it make much difference whether the disorder is in the realm of the so-called real or the imaginary. In either case it demands and deserves treatment and cure. A diseased imagination is as potent a cause of disease as a colony of pathogenic bacteria! It may be, indeed, far less susceptible to treatment.

Many of these cases present similar conditions — muscular weakness, ill-defined pains in the back and shoulders, inability to sleep satisfactorily, digestion uncertain, general feeling of worry and depression.

The general indication is for an increase of vigor, of vitality, something that will increase cell metabolism. Strychnia is temporarily effective in many of these cases, but inasmuch as the general conditions of environment remain the same, the patient soon reverts to the unsatisfactory state obtaining on beginning treatment. The agent which meets the conditions presented both theoretically and practically is muscular exercise. By this means, in many cases, the power of the digestive processes can be increased, general muscular tone secured, refreshing sleep and resulting wholesome view of life restored.

Muscular exercise of a general character is frequently prescribed, but often without beneficial results. The form of administration, the size of the dose, the frequency of the dose, and the psychic accompaniments of the exercise each form necessary elements for consideration. Success will depend upon good judgment on each of these points.

In order to secure the general organic effects of muscular exercise it is important, indeed it is well-nigh necessary, that the exercise involve chiefly the large muscular masses of the body. It is true that considerable quantities of energy can be expended by the smaller groups of muscles. One may exercise with the arms alone so as to secure genuine muscular fatigue, but the amount of neural expenditure involved, in order to secure the desired physiologic results, is far greater where the muscles are small than where they are large. To raise the weight of the body one foot, by means of the arms alone, involves expenditure of as many units of energy as is represented by the weight of the body. A person weighing 150 pounds would expend 150 foot-pounds of energy in raising the weight of the body one foot, whether this were done by the arms or by the legs. The sum total of the effect of this exercise upon the heart and lungs and digestive processes would not be essentially different in the two cases, for the organic effects are directly related to the number of foot-pounds of energy expended, rather than is the consciousness of fatigue involved. Where, however, the exercise is done with the legs, it is done with ease; when it is done with the arms it is accomplished, by women at least, with the greatest difficulty. The amount of will, and indeed of nervous energy, varies greatly in the two cases. A person who has by dint of great effort raised the weight of the body by means of the arms will usually find that when the hand is held free the fingers will tremble,

indicating overexpenditure of effort. The same amount of work done by the legs will not leave the individual in this undesirable condition. Thus, my first point in the use of muscular exercise as a therapeutic agent in the cases under consideration is that it should be primarily exercise of the large muscular masses of the body as distinguished from the small muscular masses. Such gymnastics as involve primarily movements of the arms are of slight value from the organic standpoint as compared with those in which the body itself is moved by means of the legs. In bicycle riding we find the work done by the large muscles. The muscles around the shoulder girdle are not exercised to any great extent, but all the muscles attached to and descending from the thorax to the pelvis, practically all the muscles connecting the pelvis with the thigh and leg are constantly involved in bicycle riding. This explains why it is so comparatively easy to affect the appetite, the sleep, the general circulation and respiration by means of bicycle riding as compared with the formal gymnastics usually employed. By means of the bicycle we expend many foot-pounds of energy without great neural exhaustion.

In order to the economy of nerve tissue, it is also important that the size of the load given to the muscular masses shall be small in proportion to their strength. The sum total of force expended in lifting one pound one foot for fifty consecutive times is identical with the amount expended in raising a fifty-pound bell one foot once. The neural results are, however, wholly different in the two cases. In the one case there has been little, if any, conscious effort; the work is done easily. In the other case it is only by great effort that the work is done; there has been strain of will and concentration of effort. The one form of exercise makes for nervous exhaustion, while the other does not. This principle of dividing the dose in those cases in which the effects of muscular labor are to be secured with a minimum of neural expenditure is fundamental in all these cases. We have no other agent by which we secure so readily a large number of minimum contractions of large muscular masses as we have in the bicycle. In ordinary riding on a country road, or a city street, each push upon the pedal involves but slight effort, but the sum total of work done, because of the large number of efforts, is very great.

A third element of great importance is that the conscious attention and deliberate exertion of the will shall be minimized; in other words, it shall be desirable that so far as possible the exercise be automatic. The illustration of the comparative ease of walking on a smooth road where the steps may be automatic, and the fatigue involved in walking railroad ties where the steps cannot be automatic, is familiar. The one demands constant attention, the other is done automatically. Our sense of fatigue is usually from central exhaustion, not from fatigue of muscle. Those activities which are presided over by automatic centers are far less liable to produce fatigue than those which demand conscious attention. Bicycling, after it has become familiar, thus corresponds to this indication. The riding and steering is wholly automatic. The completion of each revolution of the pedals itself acts as a stimulus to the impulse necessary in order to the next revolution. Amounts of work are done because of this automatic nature of the exercise, which would completely exhaust the patient if each effort were directed by the conscious will.

In regard to the psychic accompaniments of the exercise much might be said. The scientific data are not available which completely explain the differences between the effects of exercise when done alone and when done with pleasurable companions. It is probably due, however, to the increase in circulation which always accompanies the pleasurable emotions. If we accept the Lange-James theory of the emotions, we have a working hypothesis of great interest. Whether we have any hypothesis or not, the facts remain that muscular exercise under conditions of pleasant psychic associations has greater beneficial results than where other conditions prevail. The particular group of cases under consideration in this article demand diversion. It is but rarely that they can be persuaded to take systematic exercise for any considerable length of time, unless this exercise is made interesting to them. Gymnastic exercises taken alone, in one's room, are rarely, if ever, interesting, and while they are valuable in many cases, in this particular group they have proved, in my own hands at least, comparatively ineffective. In bicycling, bowling, golf, and such sports, I have found for these cases the well-nigh necessary pleasant associations; but in bicycling alone do we find both the physiologic and psychic conditions adequately met.

The fact that the exercise is taken out of doors is another point in its favor, for but rarely are rooms so well ventilated as to be as perfect in this respect as the country air. Then again, the direct effect of sunlight upon the tissues is secured out of doors and not indoors.

One of the immediate results of bicycle riding is a large increase in the respiration. Each excursion of the diaphragm is far greater than under conditions of quiet. Each minute includes many more respirations than when the individual is not doing muscular work. The effects of these respiratory movements upon the viscera constitutes one of the important beneficial results of the exercise. All those organs below the diaphragm, which include in their circulation the second set of capillaries, depend largely for their circulation upon other forces than that of the cardiac contraction. The alternate pressure and relaxation which the diaphragm exerts upon the liver is a large factor in promoting the various circulations within that organ.

Success or failure depends upon the accurate adaptation of the size of the dose to the individual need. Many of these cases have hearts that are weak. Upon moderate exertion they will

often run up to 120, or even higher, per minute. In these cases, in my own practice, the rule is to take the heart as a guide, and to increase the size of the dose with the increase of cardiac power. I determine the size as follows: Assuming that the patient already knows how to ride, I have him ride at the ordinary rate of speed for five minutes; I then count the heart rate and note its power. If the rate is below 100 I continue for another five minutes and count again. If several such periods of work fail to increase the heart rate above 100, I conclude that the heart is thoroughly able to take care of the work imposed upon it at this rate of speed. I then direct my attention to other considerations. If, on the contrary, at the end of the first five minutes I discover that the heart has run up to over 100, the patient must either then sit or lie down for five minutes. If after five minutes' rest the heart has not gone down to between 70 and 80, it indicates that the heart has done more work than its present degree of strength will warrant it in doing. No further exercise should be given until the heart comes back to approximately its normal rate. Even five minutes of exercise may produce genuine cardiac fatigue in a very weak heart, which may persist for hours or for days. One spring, when I was not in good condition, I played five tennis sets successively with great vigor; it was thirty-six hours before my heart got below 85. The only way to judge in these cases as to what is safe to give the heart is by proceeding cautiously and testing it at frequent intervals. The case is rare, however, in which five minutes' gentle exercise will not completely recover within five minutes' rest. This small dose may almost invariably be repeated for three or four times, the few minutes' rest always intervening. Gradually with the increased strength of heart, the periods of rest may be made shorter, the periods of riding longer, and ultimately the speed of riding somewhat increased. It is, however, never wise, for therapeutic purposes, to ride at a rapid gait, for here the expenditure of nerve tissue in order to stimulate the muscles to greater activity is much greater in proportion to the work done than where the ride is at a moderate gait.

In those cases in which the heart, as shown by the preceding test, is fully competent to meet the work demanded, the test of fatigue is the movement of the fingers when the arm is held extended from the body with the fingers spread. The fingers and hands should be as steady as they are during ordinary daily conditions. As soon as the fingers begin to tremble or to make athetoid movements, the demands upon the nervous system have been greater than is desirable; hence the stimuli to the muscles are not regular, hence the trembling. The doses of exercise should be so divided that this trembling will not be produced.

The patient who could not possibly stand fifteen minutes of vigorous exercise consecutively given, because of weak heart or an exhausted system, will readily endure with advantage fifteen minutes' exercise divided into three doses, with five minutes' rest between each dose. This may be repeated with ease twice or three times, and under certain conditions four times during the twenty-four hours. I have seen patients under this treatment have long quiet nights of sleep, with appetite that began to increase within two or three days, who thought that they were utterly unable to take exercise.

The third guide with reference to the size and frequency of the dose is as to recovery over night. Fatigue should never be allowed to become consecutive. Each night should see complete recovery from the fatigue of the preceding day. This must not be understood to mean that a person who always rises with the sense of fatigue shall immediately upon the beginning of treatment lose this consciousness. It does mean, however, that this consciousness of fatigue should not be increased. In the course of two weeks to a month it should be wholly lost. If so much work is given that the morning fatigue indicates that there has not been complete recovery from the exercises of the preceding day, the result will consist in a gradual decrease in the vigor of the patient.

I have but one word to say in regard to the position on the bicycle. Aside from the proper adjustment of the saddle, the one other important point is that the spine shall not lose its normal relations. It is not of particular significance that the spine shall be erect or inclined forward, provided the spine itself be not bent in the dorsal or the lumbar regions. If the pelvis is tilted forward, the whole spine may be inclined forward at an incline of even 45 degrees without interfering in the least degree with the respiration or circulation; but if bending forward is accomplished by the bending of the dorsal and lumbar spine, the result is an embarrassment both of cardiac and respiratory activity. Both the depth and the width of the thorax are decreased. The heart becomes irregular because of the restricted chest when it would not do so were it not embarrassed by the position of the thorax. The height of the handle-bars thus has comparatively little to do with the wholesomeness or the unwholesomeness of the position. The fundamental question is, is or is not the spine bent?

A small caution needs to be given at this point. In learning to ride we have a new element introduced, we have the acquirement of a habit involving a somewhat complex set of muscular co-ordinations. This is in itself a considerable demand upon the nervous system, so that if the patient has to be taught to ride it should be done with slowness. It may easily increase nervous fatigue and exhaustion.

To summarize, the bicycle is a useful therapeutic agent in those cases in which it is desirable to quicken the general organic functions of circulation, of respiration, of the whole digestive tract, together with ample diversion and out-of-door air. Its particular advantages are that it gives exercise of the large muscular masses, that

the exercise consists of a great number of small efforts; that it is automatic and does not call for great neural expenditure, in proportion to the amount of work done there is but little consciousness of fatigue; that the exercise is out of doors; that it is available anywhere; that with it there may be good companionship and varied scenery.

MERCURIC CYANIDE AS A SURGICAL DISINFECTANT.

BY CHARLES HARRINGTON, M.D., BOSTON,
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In the course of a series of experiments in the field of practical disinfection, I turned my attention to the determination of the rapidity of action of mercuric cyanide, a substance which of late has come into considerable favor in surgical practice, being used in solutions of 1-1000 and 1-2000 as a substitute for corrosive sublimate, over which it is believed to possess a number of distinct advantages, among which are non-formation of precipitates with albumins, and rapid action. The latter quality is certainly of the very greatest importance, since an agent that destroys bacteria only after prolonged contact may be worse than none at all, because of its leading to a false sense of security. Thus, with full confidence of immediate action, one may proceed in an operation with an agent that serves no useful purpose.

In testing the germicidal property of mercuric cyanide, silk threads impregnated with twenty-four-hours-old bouillon cultures of *Bacillus pyocyaneus*, *Bacillus coli communis*, and *Staphylococcus pyogenes aureus* and *albus* were subjected to the influence of a 1-1000 solution of the pure salt. After varying periods of contact, they were withdrawn and planted in tubes of sterile bouillon, which were then incubated at 37° C. for twenty-four hours. In the first experiment, the longest period of contact was ten minutes. The table below, in which + indicates growth and — indicates sterility, sets forth the results.

Exposure.	B. Pyocyaneus.	B. Coli.	Staph. Aureus.	Staph. Albus.
10 seconds	+	+	+	+
30 "	+	+	+	+
30 "	+	+	+	+
40 "	+	+	+	+
50 "	+	+	+	+
60 "	+	+	+	+
1½ minutes	+	+	+	+
2 "	—	—	+	+
3 "	—	—	+	+
4 "	—	—	+	+
5 "	—	—	+	+
7 "	—	—	+	+
10 "	—	—	+	+

The results obtained with the two species of pus cocci led to further experiments to determine how long these organisms can maintain their resistance. *Staphylococcus albus* survived exposures up to twenty-five minutes, but was destroyed in half an hour; *Staphylococcus aureus* was unaffected by contact for no less than three hours. The threads infected with this organism were exposed 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60 minutes, 1½, 2, 2½ and 3 hours, and with the exception of the last, which required 48 hours' incubation, all yielded abundant growths within 24 hours.

Mercuric cyanide is more commonly employed in conjunction with double its weight of borax, which substance serves to prevent corrosion of instruments. Since the combination might, perhaps, prove to exert a more pronounced bactericidal influence than the cyanide alone, it, too, was given a trial. Prepared tablets, one of which in a liter of water gives a cyanide strength of 1-2000, were obtained, and two solutions were made: one with 4 tablets (1-500) and the other with 1 (1-2000). Neither proved to have any influence whatever on *Staphylococcus aureus* up to a half hour, beyond which time the tests were not continued.

The above results can lead to but one conclusion concerning the practical value of mercuric cyanide, for a substance which, when employed in the strength recommended, cannot destroy all known species of pus organisms within three hours, and in double that strength accomplishes nothing in thirty minutes, can hardly be classed among the efficient germicides.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D., BOSTON.

AN ANATOMICAL STUDY OF THE GASTRO-INTESTINAL TRACT OF INFANTS.

Bloch [1] studied the stomachs of 5 infants that died of other than digestive troubles, and the intestines of 9 normal infants, and of 10 dead of gastro-enteritis. He injected from 100 to 150 cc. of a 10% solution of formalin into the peritoneal cavity immediately after death. In this way he obtained very satisfactory specimens.

He found that in the stomach the number of glands per unit of surface was somewhat less than in adults and that their arrangement was irregular, the glands being grouped. The glands in infants were much smaller and contained much fewer gland cells. The glands were, however, of the same sort as in adults and the gland cells were as well developed. The functions of the glands and of the cells were equally well developed We must believe, therefore, that the gastric juice of infants contains the same ferments as that of adults, but that in the first few months it is feeble both in ferments and in hydrochloric acid.

While the mucous membrane of the stomach in infants is but little developed, the mucous membrane of the intestine is, on the other hand, developed to the highest degree. Almost the same number of glands and villi per unit of surface are found in the intestine of the infant as in the adult. They also are nearly of the same size. The superficial epithelium is also as well developed in infants as in adults. He recognized two sorts of Lieberkuhn's glands, one secreting only mucus

[1] Jahrb. f. Kinderheilkunde, 1903, v. lviii, p. 121.

and one a special intestinal ferment. He found these latter glands throughout the whole small intestine, as in adults, and also in the upper two-thirds or three-quarters of the large intestine. Those in the large intestine gradually diminished in number and had disappeared at two years. The mucous glands, as in adults, were found only in the large intestine.

While the mucous membrane of the intestine is developed to a very high degree in infancy, the other intestinal layers are less developed. The slight development of the muscles of the intestine is especially striking. Both the circular and longitudinal muscles form only thin layers in the intestine of the infant. He found as the average figures of a number of measurements of the equally contracted parts of the jejunum thickness of the mucous membrane in adults .20; in a two months' old infant .18; thickness of the muscular coat, adults .90; two months' old infant .35. His investigations showed conclusively that the muscles were not much stronger at ten months, but that by two years they were decidedly stronger, although not as strong as in adults.

The intestine of the infant is proportionately much longer than that of the adult. This is probably principally due to the slight development of the intestinal muscle. For this reason the valvulæ conniventes and the cross folds in the mucous membrane are less in number and smaller in size. Even if the intestine of the infant is relatively longer than that of the adult it does not follow, however, that the surface of the mucous membrane is relatively greater in the infant.

A STUDY OF GASTRO-INTESTINAL CATARRH IN INFANTS.

Bloch[2] reviews the literature on the subject and then gives the results of his own study of ten cases of gastro-intestinal disease in infancy. The intestines were hardened by the injection of a ten per cent solution of formalin into the peritoneal cavity immediately after death. In this way he prevented any post-mortem changes. His results differ materially from those of Baginsky and his followers in that the marked degenerative changes described by them were wanting. He believes that these changes which they described were post mortem in origin. He failed to find certain peculiar degenerative changes described by Heubner, Marfan, and others.

He concludes that there is an inflammation of the intestinal mucous membrane in the acute and chronic gastro-enteritis of infants which is most marked about the ileo-cecal valve. The more marked intestinal changes ordinarily extend but a short distance into the small intestine. The inflammation is more generally distributed in the large intestine. In individual cases a less marked inflammation may also occur in the duodenum, but by far the greatest part of the small intestine is free from marked inflammatory appearances. The superficial epithelium and the intestinal glands are for the greatest part well preserved.

Inflammation occurs in the intestine in the same way as in all other mucous membranes.

In the acute forms it shows itself especially by a marked injection, numerous hemorrhages and a slight round-cell infiltration of the mucous membrane. The glands may show cystic dilatation. A large part of the cells of the glands and of the superficial epithelium is destroyed in these places and hemorrhagic ulcerations occur.

In the more chronic forms are found the same changes, but less marked in degree. They are characterized by a marked round-cell infiltration of the mucous membrane and sub-mucosa and by an exudation of round cells. In addition, superficial losses of substance and follicular ulcerations are found.

A sharp differentiation between the acute and chronic forms is no more possible anatomically than it is clinically; they run gradually into each other.

In the stomach occur inconstantly hemorrhagic ulcerations and alterations in the interstitial tissue. The superficial epithelium is always well preserved and normal, and the glands usually so.

A STUDY OF THE INTESTINES IN INFANTILE ATROPHY.

Among other cases Bloch[3] carefully studied the intestines of three cases of atrophy. No noteworthy pathological changes could be made out microscopically. The intestine was long and its wall was thin as paper. Both conditions were a direct result of the distention of the bowel. The thinness of the wall is, he claims, certainly not due t an atrophy of the mucous membrane, but is merely a necessary result of the distention. Microscopically he found no important pathological changes, no destruction, no cicatricial changes and no extensive degeneration. The mucous membranes were everywhere well preserved with the epithelium, glands and villi of natural form and in normal quantity. No signs of inflammation were made out. The mucous membrane was, on the other hand, anemic and contained few leucocytes.

He also studied the various glands which secrete the ferments necessary for assimilation and absorption. The glands of the stomach showed no alterations, neither did the pancreas, Brunner's glands, or liver. Lieberkuhn's glands were well preserved in all cases and all had their natural form. This was not the case with the gland cells, however. The author studied especially Paneth's cells. In the cases of atrophy which he investigated these cells were either absent or very few in number. This happened only in the cases of atrophy and not in children with acute or chronic gastro-intestinal catarrh. In these Paneth's cells were always found.

It seems, therefore, that the diminution in the number of secreting Paneth's cells is peculiar to

[2] Jahrb. f. Kinderh., 1903, v. lviii, p. 733.

[3] Inaugural Dissertation, Copenhagen, 1902. Abstr. in Jahrb. f. Kinderh., 1903, v. lviii, p. 271.

infantile atrophy. Lieberkuhn's glands are, therefore, in these cases, not in a condition to perform their function as serous glands of digestion.

THE LEUCOCYTES IN THE SUMMER DIARRHEA OF INFANTS.

Zahorsky[4] examined the blood of 7 infants suffering from gastro-enteric infection, but without signs of colitis. He concludes that the leucocyte count in these cases is too variable to be of special diagnostic importance. He believes, however, that the differential count is extremely valuable in estimating the intensity of the intoxication. The normal ratio of the polymorphonuclear neutrophiles to the lymphocytes in infants is 2 to 3 or 4. In gastro-enteric disease this ratio is changed, the polymorphonuclear cells gradually increasing, while the lymphocytes diminish, the ratio becoming 1 to 1, 4 to 3, or even 3 to 1. A predominance of the polymorphonuclear forms is a corroborative sign of the intensity of the morbid process. A great relative increase in the polymorphonuclear leucocytes means that the baby is pretty sick, whatever the other signs may indicate.

(To be continued.)

Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.

PROCEEDINGS OF THE THIRTY-FIRST ANNUAL MEETING, HELD AT WASHINGTON, D. C., OCT. 26, 27, 28, 29, AND 30, 1903.

(Concluded from No. 1, p. 21.)

ON THE VALUE OF TESTS FOR BACTERIA OF SPECIFIC TYPES AS AN INDEX OF POLLUTION.

MR. H. W. CLARK and STEPHEN DEM. GAGE, Boston, Mass., in their joint paper with the above title said that the principal types of bacteria used as indices of pollution are the colon type, sporogenes type, sewage streptococcus type and occasionally the two so-called paracolon types, *i. e.*, the aerogenes or enteriditus Gartner type and the chologenes type. The colon type is the most numerous of these in normal sewage and is accordingly of the most value as a specific indication of pollution. Bacteria of the colon type can be detected in ordinary city sewage in dilutions of 1-10,000 to 1-100,000. The presumptive test as applied to the colon type, reacting as it does with some 58 well described species of bacteria, covers too broad a field unless followed by confirmatory tests. Tests for B. coli at the Experimental Station at Lawrence have agreed well with the results obtained by chemical analysis and by inspection of the sources of the samples.

Surface waters having the greatest relative population on their watershed have shown bacteria of the colon type more frequently than others with less population. Ground waters, on the other hand, unless grossly polluted never show bacteria of colon type. Samples of shellfish from sources polluted and unpolluted have almost invariably shown the presence of B. coli in the polluted samples and their entire absence in the non-polluted samples. Examinations for B. coli in different volumes of water show that tests in both 1 and 100 cubic cm. should be made, the tests in larger volumes being confirmatory of the tests in the smaller volumes; and in cases where a considerable number of samples are taken from the same source tests in the larger volumes usually give more information day by day as to the quality of the water than do the tests in 1 cubic cm.

Epidemics of typhoid fever coincident with the findings of B. coli in normally pure waters, *i. e.*, in waters known to be safe under ordinary conditions, but becoming dangerous by the accidental entrance of polluted water, have occurred within the observations of the writers, where, although the entrance of this pollution was known, the danger was not indicated by chemical tests or by an increase in the numbers of bacteria beyond the usual limits of variation for waters of this class. Comparative tests for the relative viability of B. typhosus and B coli show that there is a very great similarity between the length of life of the two germs under a great variety of conditions.

ISOLATION OF BACILLUS COLI COMMUNIS FROM THE ALIMENTARY TRACT OF FISH AND THE SIGNIFICANCE THEREOF.

MR. GEORGE A. JOHNSON, Poughkeepsie, New York, read a paper on this subject. He stated that it has been shown that the colon bacillus is taken up by fish, and the results of the experiment described indicate that it multiplies rapidly in the intestinal tract of the same. It has been shown that a search of a large number of fish caught in an unpolluted water failed to reveal the presence of this organism in the intestinal tract. It would seem possible, therefore, that fish, having taken up the colon bacillus from a polluted water might migrate to a water of comparative purity where they would naturally discharge the greatly increased number of these organisms. Whether the finding of the colon bacillus deposited in a water in this manner would depreciate the value of the colon test in the examination of a public water supply is a question. It would certainly appear that if the colon bacillus can be thus easily transferred from one water to another the transportation of the typhoid bacillus may be considered quite as likely. At least, the above results may explain the apparent phenomenon frequently noted where B. coli communis is found in comparatively large numbers in waters apparently open to but remote chances for fecal contamination.

THE BACTERIAL EXAMINATION OF ONE HUNDRED AND FOUR SAMPLES OF WATER, TOGETHER WITH A DETAILED STUDY OF THE COLON BACILLUS.

DR. WILLIAM G. BISSELL, Buffalo, New York, read a paper on this subject. In connection therewith he said that after consulting with many

laboratory workers it had been decided to inaugurate an investigation along the following lines:

First Division. To ascertain what constitutes a colon bacillus.

Under this division the following points were considered: (*a*) Isolation and culturing in the different media of colon bacilli from fifteen different sources.

(*b*) The comparison of colon bacilli so isolated with certain lactic acid organisms.

(*c*) A comparison of presumptive tests using colon bacilli and two organisms common to most waters., viz., the bacillus fluorescens liquefaciens and the bacillus putridus.

A recapitulation of the results demonstrated that the amount of gas produced, the production of indol and putrefactive odors are not constant factors with even true coli; that many of the lactic acid organisms bear a close resemblance to colon bacilli; and that it is not safe to depend upon presumptive tests alone in determining the presence of colon bacilli in the water.

Second Division. The amount of water advisable to test in arriving at an indicator of pollution: 104 samples of water coming from Niagara river were examined at respectively 12 and 22 miles below a place where the sewage of over 400,000 people is received. Different amounts of each sample were examined and the comparative frequency of the presence of colon bacilli determined.

A summary of the results demonstrated that colon bacilli were present in 52% of the samples when 1 cc. was the amount examined at the 12-mile distance and in but 34% when 1 cc. was the amount examined at the 22-mile distance. Both sides of the river are used for farming purposes. Many samples were collected during heavy rainfalls. A recapitulation tends to demonstrate: (*a*) That colon bacilli were not found in all cc. amounts of the sample.

(*b*) That there was a decrease in the number of colon bacilli, the greater the distance down the stream.

(*c*) That the heavy rains did not seem to increase the number of colon bacilli, although the land was used for farming purposes.

Third Division. A test was made as to the longevity of colon bacilli in natural water. Excrement from the horse, cow and from human beings were placed respectively in each of three wells. A test was made of each well at different periods. The results tended to demonstrate that colon bacilli can live in well waters at least one hundred and nine days, and that the human variety seems to have a greater resistance than that from other sources.

Fourth Division. Tests were made to determine the degree of frequency with which colon bacilli could be found in water known to be pulluted with sewage. The results obtained tended to demonstrate that not all cubic centimeter amounts of such samples demonstrate the presence of the organisms. The writer believed that many organisms have been mistaken for the colon bacilli in water work.

Fifth Division. Tests were made to ascertain the degree of frequency with which colon bacilli can be found in water not presumably polluted. This work was necessarily confined to well water. Results tended to demonstrate that there are many wells the waters of which do not contain colon bacilli, even though larger quantities are examined.

A SIMPLE METHOD FOR THE ROUTINE DETECTION OF COLON BACILLI IN WATER.

A paper on this subject was presented by DR. ROYAL STOKES, Baltimore, Md. This paper proposed the use of neutral red in a fermentation tube containing 1% lactose or milk sugar bouillon, for the routine detection of colon bacilli in drinking water. The work of Theobald Smith has shown that the colon bacillus ferments lactose with the production of from 30 to 50% of gas, that the medium is acidulated, and that the proportion of gas is usually that of one part of carbon dioxide to two of hydrogen. Jordan studied a large number of bacteria which carried out all of the phenomena in the lactose fermentation tube which is characteristic of the colon bacillus. The writer also isolated a moderate number of fermentive bacteria from the Baltimore water supply, and failed to find any fermentive bacteria exactly resembling the colon bacillus in lactose bouillon in the fermentation tube.

In addition to the above characteristics of the colon bacillus in lactose bouillon, this organism causes a characteristic color reaction when neutral red is added to the solution in the proportion of 10 cc. of a .5% solution to 1 liter. This has been partly described by Irons and others, but they use the test in an ordinary test tube.

When used in the fermentation tube, the open bulb remains a port wine color and the closed bulb a light canary yellow, often showing fluorescence. The curved stem joining the closed and open bulbs shows an abrupt contrast of the colors usually in the middle of the curve. The members of the proteus and cloacæ group usually turn both bulbs yellow, but not always.

The method recommended is to inoculate a fermentation tube containing 1% lactose neutral red in the routine examination of water. If the percentage and amount of gas, the acidity, and the typical yellow-red contrast reaction all occur, the organism can be considered as bacillus coli communis. This is a much shorter method than the isolation in pure culture which takes from five to seven days, and will also make it easier to carry out quantitative experiments. These four distinct characteristics would seem to be sufficient to identify the colon bacillus in simple routine work.

REPORT OF THE COMMITTEE ON THE SIGNIFICANCE OF B. COLI IN WATER SUPPLIES.

MR. S. C. PRESCOTT, chairman of this committee, said in substance that to present a statement of the opinion of the committee individually and as a whole as probably representing the generally

accepted views of sanitary bacteriologists as to the significance of B. coli in water, the following questions were sent to each member. The answers appended, except as otherwise stated, were practically as given below.

(1) In view of the fact that numerous investigators have found B. coli in nature where it could not be directly traced to sewage or fecal pollution, do you believe that the colon test of water is as safe an index to pollution as it was formerly regarded to be? *Yes.*

(2) Are you of the opinion that the number of colon bacilli rather than their presence should be used as a criterion of recent sewage pollution? *Yes.*

(3) To pronounce a water sewage-polluted, would you require as evidence that B. coli was present in a majority of one cubic centimeter samples? *Yes, in general.*

(4) Are you in favor of recommending that the examination of large samples for B. coli 100-1000 cc. be discouraged? Four members say in reply, *Yes.* One says, *No.*

(5) In case of a strong presumptive test, what confirmation tests would you require to make certain that the organisms present were B. coli? *Full set of distinctive cultural tests.*

(6) In view of the probable presence of streptococci in polluted waters, do you think it desirable that they be isolated as well as B. coli to confirm suspicious evidence of pollution offered by B. coli? Two could not recommend this; one thought it would be advantageous occasionally, but not practicable because of increase in routine work; one believed it should be done, when possible, for the sake of securing additional data, and for its general confirmation of the colon test; and one was indefinite.

MR. EARLE B. PHELPS read a paper on

A CRITICAL STUDY OF THE METHODS IN CURRENT USE FOR THE DETERMINATION OF FREE AND ALBUMINOID AMMONIA IN SEWAGE.

A DANGEROUS FOOD-PRESERVATIVE.

DR. CHARLES HARRINGTON, Boston, Mass., in a paper on this subject, stated that sodium sulphite is used very extensively as a food-presevative, and more particularly for its effect on the color of chopped meat (Hamburg steak) and certain canned vegetables (asparagus and corn). The assertion made in 1896 by Kionka that it is a dangerous mixture has been combated by a number of experimenters and reaffirmed by Kionka and Schulz. Dogs fed on meat containing 0.20% of the salt were found by them to present extensive lesions in almost every organ, while others fed in the same way by Lebbin and Kallmann showed nothing abnormal.

In this experiment, five cats were fed for five months on beef containing 0.20 % and a sixth one with untreated beef. All six began at once to gain in weight, but at about the ninth week all but the control began to lose and they continued to do so up to the twentieth week, when all were killed. The organs of the control were normal. The chief lesion observed in the others was a parenchymatous degeneration of the kidneys. Each of the five presented cloudy swelling and marked fatty degeneration of the renal epithelium. Acute interstitial nephritis was present in one case.

THE TERMINATION OF QUARANTINE IN DIPHTHERIA.

DR. T. W. SALMON read this paper, which had been written, he stated, because of the very great importance, in considering the duration of quarantine in diphtheria, of knowing just how long diphtheria bacilli persist in those who have had the disease, and of detecting what constitutes satisfactory evidence of their final departure.

One hundred consecutive cases of diphtheria which occurred at the Willard State Hospital had been studied with reference to these features. Any special interest or value in the review of these cases, said the writer, lies in the fact that all the individuals remained under close observation for months after their recovery, and that cultures were taken at frequent intervals from both nose and throat long after they had ceased to be infected.

The one hundred cases included those in which no pseudo existed and those of real severity. Several nasal cases were among them.

The cases were analysed in some detail in the paper and an effort made to show:

(1) In what proportion of the cases a single negative culture from the throat would have been satisfactory evidence of the disappearance of diphtheria bacilli.

(2) In what proportion of the cases two negative cultures from the throat would have been sufficient.

(3) In what proportion of the cases three negative cultures from the throat would have been sufficient.

(4) In what proportion of the cases cultures from the throat alone would have failed to reveal the persistence of diphtheria bacilli elsewhere.

The causes for failure to detect the bacilli when subsequent culture showed them to be present were briefly considered.

OFFICERS ELECTED.

President, DR. CARLOS J. FINLEY, Havana, Cuba; First Vice-President, DR. J. R. MONJARAS, Mexico, Mexico; Second Vice-President, DR. W. W. WOODWARD, Washington, D. C.; Secretary, DR. CHARLES O. PROBST, Columbus, Ohio; Treasurer, DR. FRANK W. WRIGHT, New Haven, Conn.

Havana, Cuba, was selected as the place for holding the next annual meeting.

THE scare occasioned in Lincoln, Neb., by the report that twenty-five cases of leprosy had been discovered in the Russian colony, has been dispelled by the report of the Health Commissioner, who made a thorough investigation. — *American Medicine.*

Recent Literature.

A Manual of Surgical Treatment. By W. WATSON CHEYNE, C.B., M.B., F.R.C.S., F.R.S., Professor of Surgery in King's College, London, Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc., and F. F. BURGHARD, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College, London; Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc. In Seven Volumes. Volume VII. The Treatment of the Surgical Affections of the Rectum, the Liver, Pancreas and Spleen, the Genito-Urinary Organs, the Breast and the Thorax. Philadelphia and New York: Lea Brothers & Co. 1903.

This is the final volume in this work on surgical treatment. The series is eminently practical and we have but little doubt that these books supply a distinct need. One very encouraging thing has been that, as the work has progressed, its value has increased. One may differ from the views expressed by the authors, but the manual as a whole is distinctly of value. This volume deals with surgical affections of the rectum and anus, pancreas, liver and spleen, genito-urinary organs, bladder, prostate and urethra, of the penis, testes and scrotum, affections of the breast and affections of the thorax and its contents. It makes a relatively large volume of 550 pages and is fairly well illustrated. On the whole, we can recommend this series of volumes to surgeons. Many of the ideas are English, but, after all, there is perhaps no place in the world where patients are better cared for than in England.

Uterine and Tubal Gestation. A Study of the Embedding and Development of the Human Ovum, the Early Growth of the Embryo, and the Development of the Syncytium and Placental Gland. By SAMUEL WYLLIS BANDLER, M.D., Instructor in Gynecology, N. Y. Post-Graduate School. 93 illustrations. 159 pp. New York: William Wood & Company. 1903.

The author divides his book into three parts: Part I, The Essentials of Uterine Gestation; Part II, The Essentials of Tubal Gestation; and Part III, Ovarian and Placental Secretion.

In Part I the changes which take place in the uterus during menstruation are traced, and the statement is made that "Menstruation is not a process by which the mucous lining of the uterus is thrown off, with subsequent regeneration previous to the next menstruation. It is simply the excretion of blood from the decidua menstruatis occurring for the simple and sole reason that there is in the uterus no fecundated ovum." "Ovarian secretion is the direct cause of this periodical swelling of the mucosa, and it continues, if fecundation has taken place, to exert, not alone a local, but likewise a stimulating influence on the general and sexual organs."

The embedding of the human ovum is described in great detail and with the aid of numerous drawings, also the development of the ovum. The origin of the syncytium is discussed in detail and the view is held that it is probable that the placenta is a gland with potentials of great importance from the standpoint of secretion.

In Part II, under the heading of "Processes Antedating Tubal Gestation," it is found that external migration of the ovum occurs frequently in tubal gestation, and that inflammatory changes which are common as causative of ectopic gestation destroy the cilia in whole or in part or diminish their functional activity.

After discussing the various opinions as to the histological processes of tubal gestation the author concludes "that, with the exception of the absence of the decidua and an enveloping zone composed of compacta, the processes of gestation in the tube are the same as those in the uterus, modified only, as we would naturally expect, by the absence of the decidua and the thinness of the tube wall."

Part III takes up the relation of the chorionic epithelium to chorio-epithelioma. A description is given of a uterine growth of exceedingly malignant character occurring after abortion and labor, or even after tubal abortion, the clinical symptom being uterine hemorrhage even after repeated curettings, very early metastases, especially in the lungs and vagina, and early death, through hemorrhage, cachexia or septic infection. In other words, deciduoma malignum is described from a developmental point of view but called by the writer chorio-epithelioma as a more appropriate name.

The book is well got up and is a credit to the publishers.

Tumors: Innocent and Malignant, Their Clinical Characters and Appropriate Treatment. By J. BLAND-SUTTON, Surgeon to the Chelsea Hospital for Women, Assistant Surgeon to the Middlesex Hospital, London. Third edition. Chicago: W. T. Keener & Co. 1903.

This is the third edition of this book. We are convinced that it is the best book of its size on the clinical character and treatment of tumors, innocent and malignant. The writer has presented a classification of tumors, but he is sufficiently discreet to recognize that at the present moment no classification will stand destructive criticism. The peculiar value of the book is that one may turn to it, as we have done during the past few months, for information. In using the book in this way we have never been disappointed. The book can in no sense of the word be termed a histological consideration of tumors, but it gives the gross appearance of tumors. It is a book that every surgeon should have for reference. It is free from dogmatism and empiricism. This is in a large degree due to the fact that the writer is familiar with the various tumors that occur in plant life and in the lower animals. The book is well but not profusely illustrated. The publishers are to be congratulated on the make-up of the book.

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FINAL REPORT OF THE ROYAL COMMISSION UPON ARSENICAL POISONING.

Allusion has already been made in the Journal [1] to the first report of this Commission, which was appointed in February, 1901, after the serious outbreak of arsenical poisoning among beer-drinkers in Manchester, England, in the previous year. The same commission has now made its final report (Nov. 14, 1903), after holding numerous hearings and examining twenty-nine witnesses. This report embraces the following topics:

(1) Further observations regarding the epidemic of arsenical poisoning in 1900, and as to the medical and public health aspects of the evidence received regarding arsenic in beer and food.

(2) The suggested relation between the disease "beri-beri" and arsenical poisoning.

(3) Tests for arsenic in foods and substances used in the preparation or manufacture of food.

(4) Ways in which foods are liable to become contaminated by arsenic.

(5) Precautions which should be taken by manufacturers to exclude arsenic from foods.

(6) Present means of official control over purity of food, in relation to arsenic.

(7) Recommendations as to improvements in official control over the purity of food.

(8) Recommendations as to the proportions of arsenic in food which should now be held to constitute an offence under the Food and Drug Act.

[1] Final Report of the Royal Commission Appointed to Inquire into Arsenical Poisoning from the Consumption of Beer and other Articles of Food or Drink. Part I. Final Report. London, 1903.

In the first place the following points are illustrated by this investigation: That due precautions were taken to prevent further sale of the Bostock sugar which has plainly caused the poisoning; that the whole number of persons who suffered from arsenical poisoning in this epidemic "was certainly 6,000, and probably the number was in fact very considerably greater." A total of 70 fatal cases occurred, and "it is evident, however, that deaths thus certified do not represent the whole number of cases in which death resulted." The medical officer of health, of Manchester, also notes a remarkable decrease in the birth-rate during the period embraced in the epidemic of poisoning.

The symptoms detailed were chiefly "inflammation of mucous surfaces, with coryza, huskiness, lachrymation, gastro-intestinal disturbance and diarrhea; peripheral neuritis affecting sensory and motor nerves, and in some cases associated with herpes or with well-marked erythromelalgia, and recent pigmentation corresponding to that which not infrequently occurs in persons taking arsenic for long periods."

There is evidence to show that such cases had occurred in other parts of England and in earlier years without recognition. Cases of so-called 'alcoholic neuritis" and "alcoholic heart" have notably diminished since precautions have been taken to free the supply of beer from arsenic.

Observations are also presented upon the elimination of arsenic by the various organs, and especially by the hair. Observations upon patients taking arsenic in regular doses, and upon control cases in which none was taken, showed a notable increase in the former. In 38 out of 41 control cases the hair was free from arsenic, and in the remaining 3 it was present only in very minute quantities.

In closing this portion of the report the Commission concludes "that it would be unwise to express an opinion that any quantity of arsenic, however small, is to be regarded as admissible in any articles of food, and we think is should be the aim of the food manufacturer to exclude arsenic altogether from his products."

With reference to the possible causative connection of arsenic with the disease known as "beri-beri" the Commission considers the evidence as inconclusive.

With reference to the subject of tests for arsenic in food, preference appears to be given to the Marsh-Berzelius test, since "Where various substances are taken in quantities which have been found practically convenient, the

presence of arsenic will be detected, when in amounts well below 1-1000th grain per pound, or (in the case of liquids) well below 1-300th grain per gallon."

The electrolytic method has been adopted at the government laboratory. With reference to the Reinsch test, the Commission concludes that for the purposes of food analysis " it must be considered unnecessary and may even be misleading."

Of the ways in which food is liable to become contaminated with arsenic, the Commission enumerates first the substances used in the preparation of food, which are liable to contain arsenic. These are sulphuric acid, largely employed in the manufacture of glucose, invert sugar, glycerine, mineral and coal-tar colors and caramels, phosphoric acid and its compounds (in mineral waters, baking-powders, etc.), boric and a few other chemicals; malt and hops (from the fuel used in drying), beer, syrup and treacle, vinegar, Demerara sugar and a few other articles of minor importance. Experiments were also made with crops grown on arsenical soil, and the amounts found in such crops was inappreciable. As to precautions to be taken by manufacturers to exclude arsenic from food preparations the Commission discusses the question of guarantees of purity, and concludes that the manufacturer can guard against arsenical contamination (1) " by obtaining adequate assurance from the vendor that the ingredients which he purchases are satisfactory in respect to arsenic (having regard to the limits which the evidence before the Commission shows to be already practicable) and by taking care that their intended use for food purposes is known to the vendor. (2) By testing any ingredients which he purchases, or himself prepares."

The means of official control over the purity of food, in relation to arsenic, are carried out under the laws relating to the Sale of Food and Drugs, the Public Health Acts and the Revenue Acts. By means of different officials these laws are available (*a*) to prevent ingredients of food which are contaminated by arsenic from being used by the food manufacturers; (*b*) to prevent finished food products contaminated by arsenic from being sold to the public.

The Commission recommends that the Local Government Board be given greater power to secure the purity of the food supply, and that a specially trained expert be provided who shall exercise constant supervision in this direction. The necessity of official standards of purity is also urged. It is also recommended that in prosecution of retailers, the manufacturer or wholesaler may also be brought into the same case, if shown to be responsible. Medical officers of health should also be authorized to " lay an embargo on the sale of suspected articles " pending their examination or analysis.

Finally, the Commission proposes a limit of arsenic in articles of food as follows: " In our view it would be entirely proper that penalties should be imposed under the Sale of Food and Drug Acts upon any vendor of beer, or any other liquid food, or of any liquid entering into the composition of food, if that liquid is shown by an adequate test to contain 1-100th of a grain or more of arsenic in the gallon; and with regard to solid food — no matter whether it is habitually consumed in large or small quantities, or whether it is taken by itself (like golden syrup) or mixed with water or other substances (like chicory or carnos) — if the substance is shown by an adequate test to contain 1-100th grain of arsenic or more in the pound."

A MEETING IN BALTIMORE TO DISCUSS THE TUBERCULOSIS CONGRESS SITUATION.

ON Jan. 28, 1904, at 8.15 P.M., there will be held in Baltimore, at McCoy Hall of the Johns Hopkins University, under the auspices of the Maryland Tuberculosis Commission, an informal meeting of American physicians and hygienists interested in the tuberculosis problem of this country. The object of the meeting will be to form a national committee to represent the American medical profession at the International Congress on Tuberculosis, to be held in Paris in 1905. There will also be a free discussion of the announced Congress on Tuberculosis in St. Louis under the leadership of Mr. Clark Bell, and the other tuberculosis congress to be held in Washington in 1905 under the leadership of Dr. Daniel Lewis, or as it is now called," The American Antituberculosis League." It is to be hoped that the deliberations at this meeting will result in an understanding between all parties concerned, and that all individualism and partisanship will be supplanted by true love to humanity, by genuine scientific and practical methods, and by the highest professional motives. If it is the unanimous opinion of the medical profession that there should be an American Congress on Tuberculosis previous to the one which is to meet in Paris next year, it should

be thoroughly representative and an honor to the American medical profession.

Prof. Wm. H. Welch, of Johns Hopkins, has kindly consented to preside. All communications relating to this meeting should be addressed to the Secretary *pro tem.*, Dr. H. Barton Jacobs, 11 Mount Vernon Place, Baltimore, Md.

Those of our readers who are not yet familiar with the present tuberculosis congress situation in America, we beg leave to refer to an open letter by Dr. S. A. Knopf of New York, entitled, "American and International Tuberculosis Congresses and Tuberculosis Exhibits for the years 1904 and 1905," which appeared in the BOSTON MEDICAL AND SURGICAL JOURNAL of Dec. 5 last, and to our editorial comments on the subject of the same date.

HEALTH COMMISSIONER OF NEW YORK.

NEW YORK appears to be open to congratulations on the appointment of Dr. Thomas Darlinton as Commissioner of Health. Although medical men have always been concerned in dealing with the sanitary affairs of the city, they have never been conspicuous as members of the health department. Recently, as we have previously stated, the medical profession was debarred from holding the highest office in the board of health. This fortunately is no longer true, and now, with the appointment of Dr. Darlington, there seems to be no reason why the work of the board of health may not be controlled, as it should be, by competent members of the medical profession. The *New York Medical Journal* speaks in the following terms of this appointment:

> Dr. Darlington has been long enough in medical life to have imbibed an ample experience in matters touching closely upon the fundamental work of sanitary authorities, and circumstances have given him unusual experience in such matters, notably the management of tuberculous disease and the sanitation of school children. On the other hand, he is not so old as to have become imbued with theories difficult for an old man to discard as exploded or to hold on probation. He is in the prime of life, at the height of his powers. Above all else, Dr. Darlington has been a practising physician in the city for years, one who has met with the reward of material success and the esteem of the community. We feel sure that his professional brethren will support and assist him in his official work to the extent of his just expectations, and we look to his administration to reflect credit upon our profession.

THE BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.

THIS Association met on Wednesday evening, Jan. 6, at the rooms of the Twentieth Century Club, to listen to an address by Dr. S. A. Knopf of New York City, upon "Our Duties in the Combat of Tuberculosis." He first described the character of the disease, contrasting the degree of its communicability with that of smallpox. The methods of prevention were fully treated as well as the modes of treatment. In speaking of the necessity for the destruction of the sputum of consumptives, he detailed his own amusing experiences in the street cars of New York City.

He was especially severe in his denunciation of the many forms of quackery and of consumption cures which exist in every large city, as well as of the numerous patent medicines advertised for the same purpose, which are not only delusive frauds, but impoverish the poor by enticing them to spend their little savings for things which are worse than useless, when the same amount expended in securing better ventilation and more wholesome food might be productive of good results.

The subject was treated in a very clear and comprehensive manner, and was freely discussed by members of the Association. After the meeting a reception was given to Dr. Knopf.

MEDICAL NOTES.

PROF. BURDON SANDERSON WILL RESIGN. — Sir John Burdon Sanderson will shortly resign the position of Regius Professor of Medicine at Oxford. He succeeded the late Sir Henry Acland in 1895. It has been his intention to resign at the age of seventy-five years, an age which he will reach in a few weeks.

FIRST INTERNATIONAL CONGRESS OF SCHOOL HYGIENE. — The first International Congress of School Hygiene will be held at Nuremberg, Bavaria, from April 4–9 next. A number of important communications from well-known authorities are already announced. Communications should be addressed to Herr Max Versen, Fränkischer Kurier, Nuremberg.

TYPHOID FEVER IN MONTREAL. — It is reported that about a thousand cases of typhoid fever have appeared in Montreal and a half dozen smaller towns in the neighborhood. Fresh cases are being reported in spite of all efforts to check the spread of the disease.

DEATHS AMONG PHYSICIANS. — From statistics compiled by the *Journal of the American Medical Association* it appears that during 1903 the number of deaths of physicians in the United

States and Canada was 1,648, probably within 5% of the total mortality in the medical profession in North America. It is estimated that the number of physicians in this country is about 120,000.

Among those who died the years in practice varied from one to seventy-five. The greatest number of deaths occurred in the twenty-fifth year of practice, in which 51 were recorded. Of the entire number 209 had practiced more than fifty years, and two had been in practice seventy-five years at the time of their deaths.

JOURNAL OF INFECTIOUS DISEASES. — The first number of the previously announced periodical entitled *The Journal of Infectious Diseases* has appeared. This journal is founded by the Chicago Memorial Institution for Infectious Diseases, and, as we have already stated, is under the editorship of Drs. Ludvig Hektoen and Edwin O. Jordan, in conjunction with Dr. Frank Billings, Dr. F. G. Novy, and Prof. W. T. Sedgwick. The aim of this new journal is to occupy the special field of infectious disease, and to include in its publications only such contributions as bear with reasonable directness upon this general topic.

The first number amply fulfils the expectations which have been formed of the journal. It is admirably printed, and in general appearance is not unlike the *Journal of Medical Research*, after which it appears to be in a measure modeled. A number of papers, embodying original investigation, appear in this issue, among others an important one by Novy and McNeal on the "Cultivation of Trypanosoma Brucei."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Jan. 6, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 40, typhoid fever 8, measles 172, smallpox 0.

DEMONSTRATION OF PATIENTS TREATED BY LORENZ METHOD. — At a special meeting of the Boston Society for Medical Improvement, held Jan. 7 at the Children's Hospital, patients who were treated by Dr. Lorenz in December, 1902, were demonstrated to the members of the Society. In addition to these the results of various methods of treatment for congenital hip dislocation extending over a period of twenty years, as practised at the Children's Hospital, were given, together with a demonstration of a new apparatus devised by Mr. Bartlett.

CENTENARIANS. — Mrs. Harriet B. Litthale of Tyngsboro, Mass., died Jan. 7, at the reputed age of one hundred and three years. Before her death her family was represented by five generations.

Elijah J. Woodruff died in Toledo, Ohio, recently at the age of one hundred and one years. He was born in Watertown, Conn.

NEW YORK.

WORK OF BOARD OF REGENTS. — A summary of the work of the Board of Regents of the University of the State of New York reported from Albany shows that during the year 1903 the Regents licensed, as a result of state examinations, 633 physicians, 176 dentists and 17 veterinary surgeons, and that, in addition, they licensed under exemptions in the laws regarding the professions 69 physicians, 36 dentists and 6 veterinary surgeons.

MORTALITY IN DECEMBER. — The weekly reports of the Health Department show that during the month of December the mortality in the city represented an annual death-rate of 18.53, as against 17.27 in November and 17.52 in December, 1902. The corrected death-rate, excluding non-residents and infants under one week old, was 17.69. Among the diseases in which there was an increased fatality are the following: The weekly average of deaths from diphtheria and croup increased from 40 in November to 47.25 in December; from scarlet fever, from 7.75 to 17.75; from influenza, from 5.5 to 8; from pneumonia, from 139 to 186.75; from broncho-pneumonia, from 69 to 88.25; from acute bronchitis, from 35 to 37.5; from pulmonary tuberculosis, from 146.5 to 162; from cancer, from 44.75 to 52.75. Among the few diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 17.25 to 13; from diarrheal diseases, from 42.5 to 34.5; from diarrhea in children under two years, from 35.5 to 25.

DEATHS FROM CAISSON DISEASE. — During the past week there have been two deaths from caisson disease among the men employed in the construction of the new Manhattan bridge, the third of the great bridges over the East river connecting the boroughs of Manhattan and Brooklyn. Altogether there have been five victims of the disease in the work on Manhattan bridge. The last one, Martin Dolan, was an inspector of masonry work. His death occurred on the first day of his employment in that capa-

city, and he had spent less than half an hour in the caisson when it took place. The bottom of the caisson is 92 feet under the river, and the pressure there is 45 pounds to the square inch. Like the two compartments above, this lower one is provided with an airlock. Dolan, it is stated, had passed the physical examination of his own physician, as well as of the civil service physician, and had been pronounced fit. As a result of his death the bridge commissioners immediately had a conference with Health Commissioner Darlington for the purpose of seeing what steps could be taken to make the work more safe. The first thing done was to instruct Dr. William E. Weber, of the Board of Health, to make a careful examination of all the engineers and laborers employed in caisson work, noting their present condition and each man's experience, and from his report it is expected that the health department will gain additional information of value in regard to the characteristics of the disease and as to the class of men who can be employed in the work with the least risk.

Radium in Therapeutics. — In a lecture on Radium in Therapeutics, delivered Jan. 5, before the William Pierson Medical Library Association of Orange, N. J., Dr. Robert Abbe of New York expressed the opinion that this agent does not act as quickly and satisfactorily as the Roentgen ray. Experiments made by others and himself indicated, he said, that radium is of especial value in removing birthmarks. Most of the reports in the press in regard to the wonderful cures effected by it were exaggerated. Especially was this true as regards cases of blindness; but, at the same time, it was of great service in demonstrating to the surgeon whether or not the optic nerve is destroyed or whether an opacity of the pupil exists.

Care of Water Supplies. — In his annual message, submitted to the Legislature Jan. 6, Governor Odell makes the following statements in regard to the care of the water supplies: "The report of the State Commissioners of Health shows that nearly 25,000 cases of typhoid fever, with a mortality of 1,635 cases, occurred in the state during 1903. Similar epidemics have occurred in other states. Inasmuch as typhoid fever is very frequently caused by polluted supplies of potable water, it is now classed as a preventable disease. The general acceptance of this view resulted in the passage of Chapter 468 of the Laws of 1903, entitled 'An act to amend the public health law relative to the discharge of sewage and other waste matter into the waters of the state.' The proper enforcement of this law is vested in the State Department of Health, and upon its wise and judicious enforcement will depend the lives and health of the people in a large degree. A complete record of the sources of public water supplies, and the possible conditions which may produce epidemics of typhoid fever or other infectious diseases, should be secured by the Health Commissioner, and I recommend that an appropriation be granted by the Legislature for this purpose."

Bequests. — By the will of the late Hon. James J. Belden of Syracuse, N. Y., the following bequests are left: Syracuse University, $100,000; Syracuse College of Medicine, Syracuse Home, Women's and Children's Hospital, St. Joseph's Hospital, $50,000 each; Hospital of the Good Shepherd, $10,000; three orphan asylums, $5,000 each.

Verdict of $12,500 for Personal Injury. — A verdict for $12,500 damages against the New York Central and Hudson River Railroad Company, which was secured by Alfred N. Newton in the Supreme Court on Jan. 4, is of interest from the fact that the plaintiff did not have a visible injury which could be demonstrated to the jury, the support of his claim resting entirely on expert medical evidence. Mr. Newton was in the collision in the Park Avenue tunnel which occurred Jan. 8, 1902, and well-known physicians testified that as a result of the shock received by him from the accident he had become affected with heart trouble. The evidence of witnesses called by the defence to the effect that the plaintiff had a weakened heart prior to the accident and that the company was not therefore responsible proved unavailing in convincing the jury that such was the fact.

Constitutionality of Tenement House Act. — On Jan. 8 the Appellate Division of the New York Supreme Court handed down a decision in which the constitutionality of the Tenement House Act, which asserts the right of the Tenement House Commissioner to compel the making of alterations required to insure proper sanitary conditions, is upheld. The case was appealed to this court by the Tenement House Departments of New York City to compel Kate Moeschen to install sanitary plumbing in premises owned by her, as specified in the act. The defendant claimed that the law imposed an unreasonable exaction, and was therefore in violation of the State Constitution.

Obituary.

JOSIAH LITTLE HALE, M.D.

DR. HALE died in Brookline, of heart disease, Dec. 21, 1903. He was born in Geneva, N. Y., April 1, 1841, and graduated from Hobart College, of which his father was president, in 1860, having been obliged to interrupt his college course for a short time because of illness. For two years he was in the employ of the Atlantic Insurance Company of New York. In 1865 he took up the study of medicine at the Harvard Medical School, from which he graduated in 1868.

In 1867 he was appointed house pupil at the Massachusetts General Hospital; his colleagues were Drs. H. J. Pratt, H. H. Hastings, H. H. A. Beach, Rufus P. Lincoln and Thomas W. Waterman. After leaving the hospital he went to Vienna for two years to pursue his medical studies, returning to Boston in 1870. He was appointed district physician of the Boston Dispensary in 1872, retaining his position for a year. In the same year he was appointed physician at the central building and remained on the staff for ten years.

He practised in Boston until 1882, when he was obliged to retire from active work on account of ill health, and went to Brookline, where he remained up to the time of his death. He published "Reports of Surgical Operations at the Massachusetts General Hospital" in Vol. 78, 1868, of the BOSTON MEDICAL AND SURGICAL JOURNAL. He was a member of the Massachusetts Medical Society up to the time of his death, also of the old Observation Society and of the Natural History Society.

Dr. Hale was an enthusiast in his profession and did not relinquish its practice until forced to do so by persistent ill health. For a long time he made a brave fight in his efforts to continue his work, but it was finally of no use; he had to give up everything that required continuous exertion. For a prolonged period he was subject to severe congestive headaches complicated with insomnia and a few years before his death heart disease developed. He found that at times by going on the water his headaches were relieved; he could sleep better, and hence he was obliged to take frequent short journeys. But the relief was only temporary, the old symptoms always returning with renewed intensity.

He was well fitted for a successful practitioner, not only being full of enthusiasm but of sympathetic and kindly manners and genial disposition. Further, he was a careful and accurate observer, taking great interest in minute experimental investigations.

For many years he was a student of genealogy and had made extensive researches into the history of his ancestors, some of whom fought in the Revolution. He was a member of the Society of Colonial Wars and of the Sons of the American Revolution.

Dr. Hale possessed a fund of information on many subjects which he was always delighted to impart to those interested. If he had been well enough to apply his mind to investigations in one direction, there is little doubt that he might have achieved valuable and important results.

His interest in everything that was going on about him; his geniality and amiability of disposition, and his strong character enabled him for many years to bear exhausting disease with patience and fortitude. Those who met him from day to day, and saw how cheerful and hopeful he was, could form no idea of the burden he was carrying. But when his friends now look back on his life and in the light of a more intimate knowledge realize what he passed through, they are impressed with the fact that his trials and deprivations were greater than those that fall to the lot of ordinary men. Bearing them in the noble and uncomplaining way that he did, he was, in the highest sense of the word a true hero, and his example should not pass unnoticed or be forgotten. W. C.

Miscellany.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

THE first public meeting of the American Society of Tropical Medicine was held at Houston Hall, of the University of Pennsylvania, Philadelphia, on January 9, 1904, Dr. James M. Anders, a vice-president of the society, in the chair. A brief statement of the scope and workings of the society was made by the secretary, Dr. Joseph McFarland, after which the speaker of the evening, Dr. James Carroll of the United States Army, and a former member of the commission appointed by the Surgeon-General of the United States to investigate yellow fever at Havana, Cuba, made an address upon "The Etiology of Yellow Fever."

Dr. Carroll reviewed in an interesting manner the early researches upon the etiology of the disease, giving special consideration to the work of Freire, Sanarelli and Finlay, then reviewed the work of the commission whose researches have now become world-wide, and resulted in the proof that we have no reason to believe that yellow fever is propagated by any other means than the bites of the mosquito known as *Stegomyia fasciata*. It is only the female mosquito that bites, therefore only the female mosquito that becomes infected. The mosquito is able to impart the disease only after twelve days have elapsed since its own infection, and may retain the ability to infect after many months, providing it does not meet with destruction in the meantime. A description of the experiments made to show the infectiousness of *fomites* seemed to exclude all possibility of yellow fever being transmitted directly.

It was with pleasure that the speaker reported that the confirmation of all of the work of the United States commission had been given by the more recently appointed French commission.

Information regarding the society, its objects and its workings, can be had by applying to the secretary, Dr. Joseph McFarland, Medico-Chirurgical College, Philadelphia.

ARGON IN ATMOSPHERIC AIR.

AN interesting communication was made recently to the Paris Academy of Science on the above subject. M. Moissan reported that he had followed up the researches of M. Schloesing who had already determined the proportion of argon existing in certain specimens of air. By utilizing the property which calcium possesses of absorbing at one and the same time the oxygen, the nitrogen and all the impurities which are found in atmospheric air, and by the use of a special apparatus of which he had already given a description to the Academy, M. Moissan had been able to estimate the amount of argon found in the air of Paris, of London, of Berlin, of Vienna, of St. Petersburg and of Athens. In all these towns the amount was identical. The same proportion of argon was also found in samples of air taken in the Channel, in the Ionian Sea in the Gulf of Naples, in the valley of Chamounix, at the Grande Mulets and at the top of Mont Blanc. Air collected in the middle of the Atlantic appeared to be slightly richer in argon than that from other places. Calcium will combine with the hydrogen which is produced during reactions, forming a hydrate which is not decomposed at a temperature of 500° C. All this illustrates the remarkable uniformity of the composition of the air. M. Moissan does not appear to refer to the question of small quantities of helion which may possibly occur in the air or as to what its behavior would be when exposed to hot calcium. The results as regards argon are of interest and the observation that the air collected in the middle of the Atlantic appeared to contain a slightly greater proportion of argon than that from other places is probably in some way connected with its solubility in water and the great and frequent variations of atmospheric pressure to which the Atlantic ocean is liable. — *Lancet.*

Correspondence.

MEDICAL REGISTER FOR NEW ENGLAND.

BOSTON, JANUARY 8, 1904.

Mr. Editor: May I ask you to state that I have not had and do not now have any intention of republishing the *Medical Register for New England*, inasmuch as I find that the members of the profession are not disposed to give it support; that I have not sold nor do I propose to sell my copyright; and that any statements to that effect, by whomsoever made, are entirely without my authority and are evidently fraudulent.

Very truly yours,

FRANCIS H. BROWN, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 2, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,420	383	23.80	23.88	4.15	2.40	.70
Chicago . . .	2,021,086	604	151	17.05	23.17	1.82	2.48	1.32
Philadelphia	1,407,968	607	133	21.23	15.64	3.79	.33	3.29
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	194	37	24.74	14.95	3.09	1.03	1.55
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	163	—	28.22	20.24	3.07	3.07	7.97
Cincinnati . .	338,377	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	80	21	13.75	27.75	6.25	1.25	—
Boston . . .	617,950	231	53	16.88	16.02	1.73	1.73	.86
Worcester . .	136,925	43	12	16.27	16.27	—	2.32	4.65
Fall River . .	119,349	44	21	2.27	40.90	—	2.27	—
Lowell . . .	104,402	34	15	2.94	8.82	—	2.94	—
Cambridge .	100,998	29	7	20.69	24.14	3.45	—	3.45
Lynn	73,875	21	5	—	4.76	—	—	—
Lawrence . .	72,348	23	6	13.04	26.09	—	—	—
Springfield .	72,020	19	3	21.05	10.52	—	—	—
Somerville .	70,413	—	—	—	—	—	—	—
New Bedford	68,863	23	8	13.04	17.39	4.35	—	—
Holyoke . . .	50,538	13	5	7.70	—	—	—	—
Brockton . .	46,601	8	4	25.00	—	—	—	—
Newton . . .	39,310	9	0	22.22	11.11	—	—	11.11
Haverhill . .	39,061	15	3	—	6.67	—	—	—
Malden . . .	37,305	7	2	14.30	14.30	—	—	—
Salem . . .	37,188	15	4	—	—	—	—	—
Chelsea . . .	36,499	4	1	—	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	16	2	6.25	18.75	—	—	—
Everett . . .	30,209	9	4	—	—	—	—	—
North Adams	29,201	5	1	40.00	20.00	20.00	—	—
Quincy . . .	26,798	11	3	18.18	18.18	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	8	2	12.50	—	—	—	—
Brookline . .	23,576	—	—	—	—	—	—	—
Pittsfield . .	22,870	6	—	33.33	—	—	—	—
Medford . .	21,956	10	4	—	40.00	—	—	—
Chicopee . .	21,692	11	5	18.18	9.09	—	—	—
Northampton	20,314	6	0	33.33	—	—	—	—
Beverly . . .	15,807	—	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	1	—	—	—	—	—
Adams . . .	14,745	2	0	50.00	—	—	—	50.00
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	7	1	—	28.60	—	—	—
Newburyport	14,478	7	0	14.30	14.30	—	—	—
Woburn . . .	14,315	5	—	40.00	20.00	—	—	—
Melrose . . .	13,819	3	—	100.00	—	—	—	—
Westfield . .	13,809	3	1	—	33.33	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	—	—	—	—	—	—	—
Revere . . .	13,609	3	1	—	—	—	—	—
Framingham	12,974	4	1	—	75.00	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,334	—	—	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	3	1	—	—	—	—	—
Weymouth .	11,350	—	—	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,730; under five years of age, 921; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 770, acute lung diseases 772, consumption 393, scarlet fever 38, whooping cough 12, cerebrospinal meningitis 7, smallpox 16, erysipelas 11, puerperal fever 16, measles 28, typhoid fever 61, diarrheal diseases 66, diphtheria and croup 116.

From whooping cough, New York 2, Chicago, 1, Philadelphia 1, Baltimore 2, Pittsburg 3, Holyoke, Chicopee and Woburn 1 each. From smallpox, New York 1, Philadelphia 11, Pittsburg 4. From cerebrospinal meningitis, New York 3, Baltimore, Boston, New Bedford and Brockton 1 each. From erysipelas, New York 4, Chicago 3, Pittsburg 1, Boston 2, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Dec. 19, the death-rate was 17.8. Deaths reported, 5,159; acute diseases of the respiratory organs (London) 186, whooping cough 113, diphtheria 43, measles 134, smallpox 3, scarlet fever 24.

The death-rate ranged from 8.2 in Kings Norton to 36.0 in Preston; London 16.8, West Ham 15.9, Brighton 17.0, Southampton 18.5, Plymouth 17.7, Bristol 16.9, Birmingham 19.7, Leicester 19.4, Nottingham 18.0, Liverpool 22.0, Bolton 16.8, Manchester 19.3, Salford 20.7, Bradford 20.1, Leeds 19.2, Hull 14.2, Cardiff 17.2, Rhondda 22.7, Grimsby 10.3, Merthyr Tydfil 21.1.

METEOROLOGICAL RECORD.

For the week ending Jan. 2, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 27	29.78	12	22	2	72	73	72	S W	S W	8	8	O.	O.	.03
M.. 28	30.06	16	23	9	55	47	51	W	W	16	16	C.	C.	0
T.. 29	30.19	16	26	6	54	100	77	W	N	5	14	C.	N.	.15
W.. 30	29.94	22	30	15	80	60	70	W	W	12	10	C.	C.	.01
T.. 31	29.98	20	26	15	73	58	66	W	S W	8	13	C.	C.	T.
F.. 1	29.80	25	35	15	61	67	64	S W	W	10	10	C.	F.	0
S.. 2	29.98	9	15	3	89	100	94	N W	N	10	20	N.	N.	.59
☞	29.98		25	9			71							.78

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 7, 1904.

IRWIN, FAIRFAX, surgeon. Detailed as member of Revenue Cutter Service Retiring Board to be convened at Philadelphia, Pa. Jan. 5, 1904.

ROSENAU, M. J., passed assistant surgeon. Four days' leave of absence from Jan. 1, 1904, under paragraph 189 of the regulations.

KORN, W. A., assistant surgeon, Detailed as member of Revenue Cutter Service Retiring Board to be convened at Philadelphia, Pa. Jan. 5. 1904.

AMESSE, J. W., assistant surgeon. Granted leave of absence, on account of sickness, for 7 days. Jan. 4, 1904.

ASHFORD, F. A., assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to Milwaukee, Wis., and assume temporary command of the service at that port. Jan. 4, 1904.

BROCK, G. H., pharmacist. Granted leave of absence for one day. Jan. 5, 1904.

MAGUIRE, E. S., pharmacist. Granted leave of absence for seven days from January 1. Jan. 5, 1904.

BOARDS CONVENED.

Board convened to meet at the marine hospital, Chelsea, Mass., January 11, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon R. M. Woodward, chairman; assistant-surgeon W. C. Rucker, recorder.

Board convened to meet at Washington, D. C., for the purpose of considering revision of medical books on contract, and preparation of list of professional books, etc. Detail for the Board: Assistant surgeon-general L. L. Williams, chairman; assistant surgeon-general H. D. Geddings; assistant surgeon A. J. McLaughlin, recorder.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 9, 1904.

H. G. BEYER, surgeon. Upon completion of board duty in connection with barracks ordered to Boston, Mass., for special temporary duty and thence to the Naval Museum of Hygiene and Medical School, Washington, D. C.

A. E. PECK, assistant surgeon. Ordered to the "Pensacola."

M. K. ELMER, assistant surgeon. Detached from the "Pensacola" and ordered to the "Hancock."

SOCIETY NOTICE.

THE PHILADELPHIA NEUROLOGICAL SOCIETY. HALL OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. — A stated meeting of the Philadelphia Neurological Society will be held on Tuesday, January 26th, 1904, at 8.15 p. m. In celebration of the twentieth anniversary of the organization of the Society the following special program has been arranged. Papers will be read as follows: Dr. James Hendrie Lloyd, "The Metaphysical Conception of Insanity;" Dr. S. Weir Mitchell, "The Mental Processes by which the Rest-Treatment was Developed;" Dr. J. Chalmers DaCosta, "The Surgical Operations Applicable in Insanity;" Dr. Francis X. Dercum, "Mystic Medicine." A cordial invitation is extended to all members of the medical profession to attend the meeting.

AUGUSTUS A. ESHNER, Secretary.
224 South Sixteenth Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — The annual meeting of the society will be held in Sprague Hall, Medical Library Building, on Monday, January 18th, 1904, at 8.15 p. m. Papers: Dr. Henry Jackson, "Tubercular Meningitis in Adults;" Dr. Francis Williams, "A Comparison between the Medical Uses of the X-rays and the Salts of Radium."

ARTHUR K. STONE, M. D., Secretary.

RECENT DEATHS.

BENJAMIN HALL HARTWELL, M.D., M.M.S.S., died in Ayer, Jan. 6, 1904, aged fifty-nine years, of pneumonia. Dr. Hartwell had been a pension examiner for twenty-eight years; he was coroner from 1871 to 1877 and for many years had been medical examiner of his district. He was graduated from the Jefferson Medical College, of Philadelphia. He had a large practice in his neighborhood and was much respected and trusted.

CORNELIUS E. BILLINGTON, M.D., of New York, died on Jan. 9, aged sixty years. He was graduated from the medical department of the University of the City of New York, in 1863, and served for a time as an army surgeon during the Civil War. Dr. Billington was for many years a district physician for the Demilt Dispensary, and during this period, which was before the days of antitoxin, attracted considerable attention by his successful treatment of diphtheria by means of tincture of ferric chloride combined with potassium chlorate.

JAMES FRANCIS FERGUSON, M.D., of New York, died at Central Valley, N. Y., on Jan. 6. He was born in New York City, Oct. 10, 1839. He was graduated from the medical department of the University of the City of New York in 1861 and from Bellevue Hospital Medical College in 1862. He served with distinction as a surgeon during the Civil War, and shortly before its close was breveted Lieutenant-Colonel of New York Volunteers. His professional appointments in New York are as follows: attending surgeon Bellevue Hospital, Outdoor Department, 1870–71; visiting surgeon to the Blackwell's Island Hospital, 1872–92; visiting physician to the Hospital for Nervous Diseases, 1886–92; consulting physician to the Charity (now City) Hospital, since 1892.

STUART H. REED, M.D., of Madison, N. J., died on Jan. 6, from pleuro-pneumonia. He was born in South Carolina, Oct. 10, 1854. He was graduated from Williams College in 1878, and from the College of Physicians and Surgeons, New York, in 1881. Dr Reed was a member of the first Board of Councilmen of Madison, and served for a number of years on the Board of Education. He was also for several years physician for the Board of Health and at the time of his death was a member of the Commission of Appeals.

GEORGE WINSLOW FOSTER, M.D., has recently died in Bangor, Maine, at the age of fifty-nine. After practicing for many years in the West, he returned East to the Government Hospital for the Insane in Washington, in 1893, where he remained until he took the position of superintendent of the Eastern Maine Insane Hospital at Bangor, an institution opened under his direction in 1901. Dr. Foster was graduated at Bowdoin College and at the Maine Medical School, and was a member of various medical societies.

BOOKS AND PAMPHLETS RECEIVED.

Zum Selbstchutz bei der Röntgenuntersuchung. By Carl Beck, M.D., of New York. Reprint. 1903.

Ueber ächte Cysten der langen Röhrenknochen. By Carl Beck, M.D., of New York. Reprint. 1903.

Bulletin No. 96. Dairy, and Food Dept. State of Michigan. 1903.

Naubeim Methods in Chronic Heart Disease with American Adaptations. By Thomas E. Satterthwaite, M.D., of New York. Reprint. 1903.

Obscure Fractures in the Vicinity of Joints. By George W. Gay, A.M., M.D., of Boston. Reprint. 1903.

Case of Splenomedullary Leukaemia Successfully Treated by the use of the Röntgen Ray. By Nicholas Senn, M.D., LL.D., of Chicago, Ill. Reprint. 1903.

The Proper Perineal Prostatectomy Incision. By Nicholas Senn, M.D., LL.D., of Chicago, Ill. Reprint. 1903.

Subcutaneous Drainage in the Surgical Treatment of Hydrocephalus Internus. By Nicholas Senn, M.D., LL.D., of Chicago, Ill. Reprint. 1903.

A Scalp Face — A New Plastic Operation. By Nicholas Senn, M.D., LL.D., of Chicago, Ill. Reprint. 1903.

Lecture.

CLINICAL LECTURE ON EPITHELIOMA AT MASSACHUSETTS GENERAL HOSPITAL.

BY J. COLLINS WARREN, M.D., BOSTON,

Professor of Surgery, Harvard Medical School.

GENTLEMEN: It is my desire to say something to you to-day in regard to cancers on the surface of the body, or the so-called epithelioma. I take up the subject with you at this time because I consider it a particularly favorable moment.

As you are aware, a great change has taken place in our attitude toward, and our treatment of, this form of malignant disease, since the introduction of the x-ray, and I think the surgeon is all the more interested as he finds that some of his patients having this disease are disappearing and going to the dermatologists and the x-ray specialists. In this hospital I find that rodent ulcers are now treated largely in the skin clinic, and we see comparatively few of such cases in the surgical wards, and I might say that this is true also in private practice.

Some thirty years ago I wrote an article on this subject and as a result of that investigation I have seen many cases of rodent ulcer, and have become familiar with the treatment used at that time and since. In the early days the treatment was with caustics to a great extent, curetting and burning with nitrate of silver, and burning with the actual cautery; but as time went on and asepsis was perfected, I began to use the knife, with the result that the cures were more rapid and much more complete than they were by the old methods of cauterization. Of course there were cases which were beyond the reach of the knife and very difficult to treat, and others so situated that removal by the knife produced great disfigurement. You will see presently to what extent the x-ray has been helpful in treating these ulcers. Occasionally I have met with cases which have proved fatal in spite of all treatment, and cases which have produced the most disfiguring ulcerations. In my "Surgical Pathology" you will see the picture of a man with one side of his face destroyed by an ulcer, and in the "International Text-Book of Surgery" you will find the portrait of a man the whole side of whose face, half the nose, the eye, cheek and the side of the mouth are gone, as a result of disease of long standing. Manifestly, such cases are beyond all therapeutic aid, and succumb in spite of any kind of treatment. Whether with the advent of the x-ray such cases will become rarer is a point which will be watched with a great deal of interest.

Considering now the pathology of epithelioma, I wish to impress upon your minds that there are two principal varieties. One which is almost a benign growth, and another which approaches more nearly to cancer in a clinical sense. It has long been recognized that carcinoma in this region of the body is very much less malignant than carcinoma of the breast and intestinal canal, for example, and in the early days when little was known about the general characteristics of cancer, these growths of the skin, being found to be composed of large pavement-like cells, were known as epitheliomata; hence, it was believed that epithelioma was a different kind of disease from that which was then recognized as cancer. Of course, until we are able to state more definitely the true nature of cancer, it is useless to try to classify its varieties to any great extent. We are sufficiently familiar with the pathological anatomy of the disease, however, to know that all these cases should be recognized as cancer, although they may be greatly modified in the appearance of their histological structure by different regions of the body in which they grow.

Now in cancers of the skin we must recognize two varieties. First a very superficial type, known as the rodent ulcer, a small-celled epithelial cancer, and second a polymorphous-celled type characterized by larger cells among which the characteristic nests of cells occur. The type of the former of these two varieties is the rodent ulcer of the face, while types of the latter form are cancers of the lip, of the back of the hand, and of the penis.

I shall speak chiefly of the former of these two varieties, cancer of the face, or rodent ulcer, or superficial epithelioma. As you know, the skin is composed of several layers. Superficially we have the epithelial cells and a horny layer, while underneath are the cutis vera and the subcutaneous tissue. Between these, in the rete mucosum, is a layer of small epithelial cells which cover the papillæ and fill the spaces between them. As we approach the surface the cells become distinctly larger, and finally, on the top the cells are dried, have lost their nuclei, and have become scales. The epithelial cell growth found in rodent ulcer corresponds to the small cell type of the rete mucosum. The clinical changes in the rodent ulcer type are very characteristic. An elderly person finds a roughness of the surface on some part of the face with the tendency at some point to the formation of a scab, and there seems to be a weather-beaten condition of the complexion. There is a growth and thickening of the upper layers of skin known as keratosis senilis. Eventually the dry scab is picked off, and an ulcer is found. This dries up and seems almost to disappear, but the scab again appears and the patient picks it off, and finally the patient finds that it is always there. And so it may go on for years, the patient accepting it as a mole, and it slowly increases in size, until some day it seems to grow more rapidly. As with all malignant growths, it has an early stage when the growth is very slow; then suddenly it takes on more rapid growth; the patient becomes alarmed finally, and seeks relief. Microscopic examination of the affected part at this time shows an undergrowth of cells gradually working down into the skin in more or less finger-like processes. Thus we have an infiltration

into the tissues below and this keeps on until the center breaks down and an ulcer is thus formed. If a bit of the ulcer is cut out and examined microscopically, we find the papillæ becoming somewhat enlarged at that point, and the cells between them gradually pushing down into the interior, and little patches of similar cells here and there between them. We find them composed of cells similar to the cells of the rete mucosum as a rule without the cell nests. One of the great clinical features of this type is its tendency to remain localized, to remain in the skin itself. It may continue to grow and involve the whole side of the patient's face, but still it remains local — in the skin. It is, however, slowly progressive, and finally attacks bone, nerve, eye and other complicated parts.

Inquiring into the history of such a case the diseased process is found sometimes to have gone on for forty years or more, during which period the growth had been at times imperceptible, but it was always there. On examination you will find no enlargement of the lymphatic glands, and that is a very characteristic feature of the disease which makes the prognosis encouraging, and I want to impress upon you this clinical trait in reference to the after-treatment.

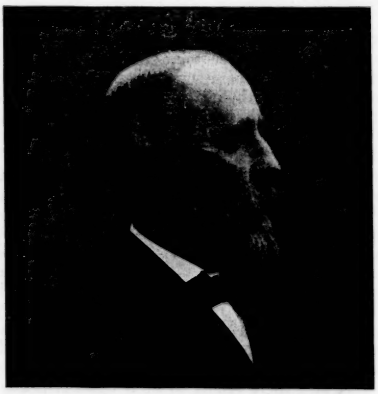


FIG. I.

The second variety is the more malignant type, the typical epithelioma, such as cancer of the lip. We find the papillæ near the vermilion border somewhat enlarged and running down in an irregular way into the tissue below. If we look at one of these prolongations we find onion-like clusters of large cells in the center, while around the edge are rows of more or less columnar shaped cells while the mass of cells in the intervening space is of the most varied character. If we examine the neck of a patient who has a well-developed cancer on the lower lip we shall find, in all probability, enlarged glands under the jaw on the side nearest to the growth, and if the cancer is on the penis the glands of the groins are enlarged, and if on the hands the glands of the bend of the elbow or of the axilia are involved, and as a consequence of this we have a fatal termination in a very much larger percentage of cases than in rodent ulcer, where the growth occurs very slowly, and death only follows as a result of long-continued growth, and invasion of important structures. Here is a photograph (Fig. I) of a man who gradually succumbed in that way, the disease beginning in the tip of the ear and slowly destroying everything in its way until the meninges of the brain were involved and he died with symptoms of cerebral complications. The photograph shows the temporary relief afforded by a plastic operation. A large ulcer occupied the site of the right ear. The patient had been subjected to a prolonged application of caustic at a " cancer cure."

Now I have a series of cases of rodent ulcer which I will show you, gentlemen, without any extended critical remarks as to treatment, then after that I will say something about the operative treatment, as contrasted with the X-ray treatment of the disease.

CASE I. Here is a man fifty-eight years of age who has had this ulceration on the nose for seven or eight years. It began on the side of the nose, then it gradually spread until it covered the whole nose. This is a good example of a very diffuse type. In some cases the disease seems to skim along the surface instead of cutting down deep into it. To what extent has it been helped by the x-ray? It has had fifteen months' treatment. He had two treatments a week at first and is now having one, and there has been a gradual improvement, but there is still well-marked ulceration at certain points. You see the neighboring skin is a good deal reddened. That is not usual. It is simply that in some of the more superficial types we see a secondary inflammation of the skin, The redness may be in part due to the action of the x-rays.

CASE II. This woman is fifty years of age. She has had a growth on the temple for fifteen years. She began treatment in February, 1903, with the x-ray. Since then the growth has diminished in size but it involves the bone near the orbit. She is under treatment now in the skin department. A cancerous growth which is small in size but which has begun to attack deep-seated tissues would seem to me to need the most radical surgical treatment without waiting for the results of x-ray therapy.

CASE III. Man of seventy-eight years. He has a large but very superficial ulcer on the right cheek beneath the eye and extending over the right half of the nose. Twenty years ago he noticed a pimple on the face after an attack of erysipelas. For fifteen years it increased in size. Came to the out-patient department for x-ray treatment, and it has relieved the pain, but not the condition. Examination under the jaws shows no involvement of the glands. This is a small-celled epithelial cancer. You see that it would be necessary to excise nearly the whole cheek, and so it seems reasonable to try the x-ray in a case of this kind. In the diffuse forms this treatment seems particularly well indicated.

CASE IV. This patient has an ulcer the size of a half dollar on the back of the neck. Eight years ago he noticed a pimple on the neck. He scratched it and thinks he poisoned it. He was treated with local applications and at one time the ulcer was excised but the wound did not heal. For one year has had x-ray treatment here. It is growing somewhat smaller, and there is less induration than a year ago. You see he is a rugged man. This seems a favorable case for cure by free excision giving the growth a wide margin and closure of the wound by a plastic operation. (This has since been done.)

Case V. Man of seventy-two years. First noticed a scab about eleven years ago over the scar of an old bayonet wound of right cheek received in the Civil War. Several years later an ulcer formed which soon began to involve the eye. There are now several ulcers in the neighborhood of the orbit and the right side of nose. Came in here about two years ago and has been taking x-rays since then. Now here is a case which seems suitable for x-ray treatment. Operation would be very difficult: the ulcers could be excised but the wounds could not be closed and Tiersch grafts would not hold with any certainty.

Case VI. This man is forty-three years old. Here the ulcer is on upper lid of right eye, which began as a pimple in the upper lid five years ago. The ulceration now extends from the inner canthus to the outer and from the upper edge of eyebrow to the conjunctiva. The outer half of the conjunctival lid is gone. No bone is exposed and the cornea and ocular conjunctiva, although inflamed, do not appear to be involved. He has also an ulcer over the malar bone which was formerly connected with that of the lid. There is vision to light in the right eye. No involvement of the glands. He has received the x-ray treatment for a year and a half. During this time there was one period of increase in the growth. There is now improvement which has been very marked during the past months.

Case VII. In this case there is a history of a blasting accident forty years ago. A few years ago he noticed a scab on the site of the scar on his cheek and also on his nose since that time. He has been treated with x-rays. The ulcer has entirely healed up on the cheek, leaving a slight scar, and there is practically no disease remaining on his nose.

Case VIII. A man seventy-one years of age. Began to have trouble twenty-three years ago on right upper cheek near the eye. He began to go to the dispensary and was treated by salves for a long time; arsenical paste, etc. When he came into my hands, four or five years ago, the whole side of the face was alternate scars and ulcers. Not a continuous ulceration, but a series of sores healing and breaking out. Finally the lids of his right eye had become thickened masses of epithelial disease. I saw that unless something very radical was done he would succumb to the disease. The eyelids were transformed into an epithelial growth and the disease was pushing into the orbit, and would soon become a very malignant instead of a superficial type of cancer. The operation performed was an excision of the integuments of the right side of the face, including the eyebrow, eyelids, cheek and the right half of the nose and a portion of the right half of the upper lip. The lower border of the incision was on a line with the angle of the mouth. To cover this wound a flap was taken from the temple reaching to the vertex, the pedicle of the flap being just above the right ear. The wound of the scalp thus laid bare was covered with Tiersch grafts. The wounds healed well and there has been as you see no return of the disease now some five years since the operation. (Figs. II and III.)

Case IX. I show you a portrait of a patient fifty years of age who is unable to come to-day from a distant city. (Fig. IV.) He came to me three years ago with an enormous ulcer involving the right temple having destroyed the upper half of the right ear from which it took its origin. It was of many years' duration at that time. The discharge, which was free, was offensive. There was no glandular involvement. Although not able to promise a cure I advised excision with plastic closure of the wound as a palliative measure. This operation was done, the wound made by the removal of the ulcer being covered in by a flap taken from the scalp having its pedicle over the occiput. As the flap was bent into place a fold formed at its lower border which fitted neatly into the remaining portion of the ear. The pericranium exposed by this operation was covered by Tiersch grafts. There was no recurrence for one year, at which time two nodules were to be felt in the parietal bone at the upper margin of the flap. These disappeared under the x-ray treatment, but there have been some recurrences since which the ray treatment partially controls. This case illustrates well the great relief afforded by a palliative operation in advanced cases of cancer of the face. A plastic operation removes the foul ulcer and the subsequent postoperative x-ray treatment postpones recurrence. It is in my opinion better not to wait for a complete cure before performing the plastic operation, but to close the wound at once and obtain the benefit and comfort of healing by first intention.

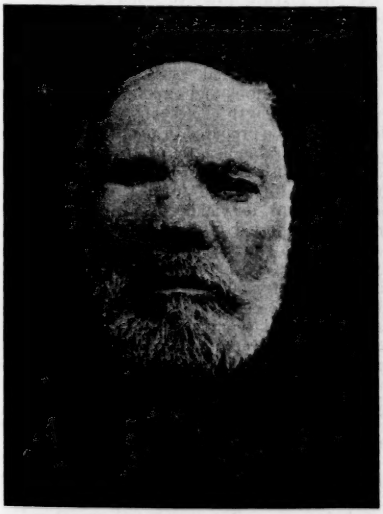


Fig. II.

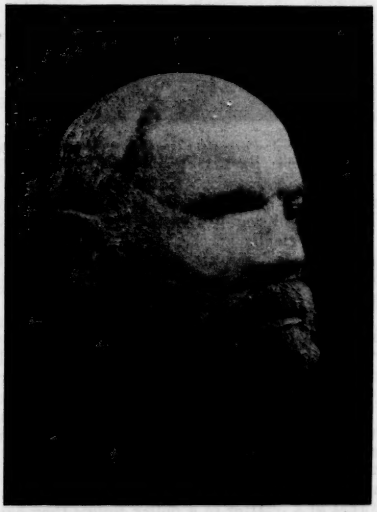


Fig. III.

Excision of right cheek and orbit; wound covered by flap taken from scalp. Tiersch grafting of scalp.

These cases give you examples of the most common aspects of the milder forms of cancer of the skin. They all can be classed in the rodent ulcer group and I have selected them therefore for our study as they are the most favorable types of cancer for the x-ray treatment on account of the superficial character of the growth. An analysis of the cases in the dermatological department of the hospital of which some of these are examples shows favorable results under the x-ray treatment.[1] It is now pretty generally conceded that x-ray therapy has a favorable influence upon very superficial carcinoma but that the more deeply seated growths are not affected by it. We may therefore dismiss at once the more malignant variety of epithelioma so far as this form of treatment is concerned with the statement that it seems hardly justifiable to lose valuable time in treating a cancer of the lip or any of its allied forms elsewhere on the body in their early stages with x-rays. These



FIG. IV. — Large ulcer over right temple and ear covered by flap from scalp. Extensive Tiersch grafting of scalp.

cases should be treated by prompt extirpation with a careful search with the knife for infected lymphatic glands at the points which the disease is most likely to invade. In regard to rodent ulcer then it remains to consider the value of x-ray therapy in its different phases.

In its earliest stages the disease is usually seen as a small pimple or ulcer situated in the nose or near the lower eyelids. These are so easily and painlessly removed by the aid of subcutaneous injections of cocaine, with the knife, that it seems hardly necessary to consider the influence of the rays upon them. Such wounds are healed in a week's time and the cure is, with extremely rare exceptions, permanent. The same may be said of growths ranging in size up to that of a quarter of a dollar, unless they happen to be so situated that their removal with subsequent suture of the wound would cause considerable deformity. This is the case near the inner angle of the eye or near the alæ of the nose or on the nose itself. Experience shows that the cicatrization following the absorption of the growth by the x-ray leaves a soft and pliable scar. If, however, the ulcer is growing rapidly and shows thickened base or edges the stage of increased malignancy is close at hand. When once the inner canthus of the eye has become involved the growth spreads with much greater rapidity into the orbit. We have then a condition which only the most radical operation can hope to control, operations frequently involving extripation of the eye and of considerable portions of bone. At the outer canthus we also see ulcers becoming adherent to the adjacent bone, which is here quite superficial. The x-ray therapeutist should therefore make himself thoroughly familiar with the more advanced and malignant phases of rodent ulcer if he wishes to make an intelligent selection of cases for treatment. There are one or two cases under this treatment shown you this morning which would be better treated by the knife. In such cases the dread of the knife should be overcome and patient be prevented from yielding to his instinct to lean towards the more popular therapy. There are others, however, which show clearly the great advantage which we possess in the ray treatment. There are those cases in which the disease is superficial and spreading over a large surface and those where ulcers are multiple and on prominent portions of the face or closely grouped together so as to necessitate the extirpation of a large piece of skin. In private practice where all such ailments are attended to in their early stages I think that the large majority should be treated by excision and that the x-rays should be reserved for exceptional cases only. The x-ray treatment is tedious and expensive and a severe trial to the strength of nervous and elderly people, who must be prepared to go out in all weathers for a considerable length of time. Some portions of the diseased growth must be allowed to continue in its course from twelve to fifteen months before it yields to the ray. During such a long period of time it might pass from the benign to the malignant stage and then be beyond the pale of surgery. I have seen many such cases dangerously near the border line and feel that a note of warning is necessary to physicians who yield too readily to the popular demand for ray therapy. I have been told recently by a skilled and experienced x-ray therapeutist that he has noticed a recurrence in several cases which he had regarded as cured, the disease returning some months later as a small nodule beneath the skin.

When we realize what frightful deformities may be produced in course of time by what is at first a painless and apparently trifling affection, is it not our duty to urge the most radical treatment in the beginning when a permanent cure is easily obtained?

[1] Dr. F. S. Burns, Boston Med. & Surg. Jour., Oct. 29, 1903.

In closing I would like also to enter a plea for more radical operations for cancer of the lip than are usually performed. Not only should the disease be removed by a most liberal V-shaped incision, but this primary lesion should be dissected away in a continuous mass with the cervical glands and tissue occupying the triangle nearest the seat of growth. The practice of incomplete "ambulatory" operations with the aid of cocaine anesthesia cannot be too strongly condemned.

Original Articles.

THE PREVAILING CONCEPTION OF DEGENERACY AND DEGENERATE, WITH A PLEA FOR INTRODUCING THE SUPPLEMENTARY TERMS DEVIATION AND DEVIATE.

BY G. L. WALTON, M.D., BOSTON.

THE term "degenerate" is now of interest not only to the anthopologist, but to the medical and general public, and the time has come to question whether it is adequate with no synonym, except for its worst significance, to meet all requirements of scientific classification and discussion, to say nothing of general use. If the word had received a uniform and accurate interpretation, the attempt to present an alternative would be superfluous. Such, however, is far from being the case. Degeneracy has become especially associated with profligacy, perversion, crime, epilepsy, insanity and idiocy. This is not remarkable in view of the nature of the word itself. The term "superior degenerate" has led to confusion, even among special students of the subject. While this term in its academic sense applies only to individuals lacking psychic balance, meaning that the higher qualities are affected, the tendency has crept in to include under it individuals with minor congenital peculiarities, whether physical or mental. But to designate an individual possessing either minor faulty mental tendencies or slight physical defects, a superior degenerate, sounds, except to the special student, something like calling a good egg slightly bad, or a business man moderately dishonest. And if in justification, not to say apology, for this diagnosis, it is stated that every one is more or less degenerate, the natural deduction is that the expression degenerate is of no special significance, or that we are only juggling with words, as one who would say "Every one is insane" or "Genius is a sign of insanity."

The works of Nordau [1] and of Lombroso [2] have so far associated degeneracy with decadence and with crime as seriously to hinder the general appreciation of its milder significance, notwithstanding its use in dealing with genius.

Degeneration in its anthopological sense is defined in the Century Dictionary as "reduction to a lower type in the same scale of being; the act of becoming, or the state of having become, inferior, *especially with respect to moral qualities.*"

The superior degenerate who seeks consolation in Roget's Thesaurus will be disappointed to find degeneracy marshaled in company with depravity, demoralization, retrogression, deterioration, perversion, prostitution, vitiation, contamination, corruption, blight, rottenness and pollution.

But degeneracy has come to include, medically speaking, every form of constitutional variation, however innocuous, from the average normal.

Dana [3] defines degeneration as "a condition in which there is a marked deviation from the average normal." Church and Peterson [4] define the stigmata of degeneration as "anatomical or functional deviations from the normal, which in themselves are usually of little importance as regards the existence of an organism, but are characteristic of a marked or latent neuropathic disposition."

The neurological definitions make no mention of moral qualities, and convey no suggestion that the individual necessarily represents a descent, even in the physical or intellectual, to say nothing of the moral, scale. Nor is it a logical conclusion that each and every deviation is degenerative because undoubted degenerates show many such signs. These stigmata range all the way from flecks on the iris, difference in color of the two eyes, unusual development of frontal lobes, left handedness and astigmatism, to perverted instincts, insanity and idiocy. Whatever they may or may not *represent*, the question in recording them is, What *are* they? It seems that they are neither more nor less than deviations from the average normal type. This type is a product of deduction rather than of experience, a composite photograph, so to speak, presenting the intellectual and moral as well as the physical characteristics of the average normal individual, a type not likely to present itself to the material eye, but none the less available for a standard. Goethe calls this standard an "abstract and general image."

Have we not, then, drifted into the unscientific position of recording *facts* in such a way as to involve an *opinion?* If so, is it not reasonable, unless we are dealing with obvious and undoubted degeneracy, to record deviations as deviations? If it is necessary to characterize their possessor, why not call him slightly, moderately or extremely deviate, or, if it seems appropriate, a deviate? And if occasion requires the use of a single word to include all varieties, is not deviation more appropriate than degeneration? Even suppose it can be proved that every deviation means degeneration, will anything have been lost by following a logical plan in establishing that proposition?

We are not limited to the word insanity in

[1] Nordau: Degeneration (Entartung). 6th Ed. Appleton & Co., 1895.

[2] Lombroso: Der Verbrecher (homo delinquens). Hamburg, Actien Gesellschaft., 1892-1896.
Criminal Anthropology. In 20th Century Practice, Vol. xii, 1890.
L'Anthropologie criminelle et ses récents Progrès. Paris, 1890.

[3] Text-book of Nervous Diseases, 5th edition, 1901, p. 24.

[4] Church and Peterson: Nervous and Mental Diseases. Saunders & Co.

describing borderland dwellers, or the eccentric individuals on the safe side of the border (though it is true that the alternatives have not always been freely used in analyzing genius).

Not every physical peculiarity is truly degenerate; for example, while albinism may be justly regarded as degenerative, in that it implies absence of a useful constituent in the organism, a mere difference in color of the eyes is not necessarily degenerate, though it must be, and so is, classified under the present method, as would, in fact, an absence of appendix if some individual should be born so happily constituted!

If the subject had not become a matter of general interest, the present limitation of our vocabulary would be less objectionable, though even if the discussion were confined to anthropological circles it would seem fair to propose an alternative which should allow a statement of facts in dealing with facts. But since the interest in this subject has broadened, and the public is expected to accommodate itself to the scientific nomenclature, is it too much to make the slight concession of introducing a term which not only does not clash with the facts, but which, if the position is well taken, is really demanded for the accurate presentation and classification of these conditions for scientific purposes?

Degeneration is attributed by Nordau to constitutional disease, alcoholism, poor nutrition and allied conditions in the ancestry; but Vaschide and Vurpas [5] attribute the stigmata to toxic infections affecting the developing embryo. Without pausing to discuss either of these opinions, we may fairly use them as illustrating the different interpretations which have been given the term degeneracy.

Why not, then, incorporate into our vocabulary, for use in its appropriate place, a term which shall give an idea of the accepted facts rather than one which presupposes a definite etiology and tendency? Do not the words deviation and deviate fairly accomplish this end?

Some such nomenclature is especially appropriate in view of the fact that the question is sometimes an open one whether the possessor of moderate stigmata represents a lowering even in the intellectual or physical scale. He may, in fact, represent an improvement, at least on his traceable ancestry.

Nor do the stigmata themselves necessarily indicate deterioration. Extreme dolichocephaly is included in the literature as a stigma of degeneration. Lombroso, for example, cites cephalic indices of 69, 73 and 74. But the fact has been established that dolichocephaly is more common in the city than in the country, an observation to which the name Ammon's law has been applied. Certain authorities have even drawn the conclusions that the long-headed type is the one best fitted to meet the exigencies of city life, and that its prevalence in the centers of population represents a "survival of the fittest." [6]

[5] Ann. di Nevro., Feb. 1, 1903. Abst. in Rev. of Neurology and Psychiatry, June, 1903.
[6] Macpherson: Review of Neurology and Psychiatry, February, 1903.

To cite a more striking instance — Lombroso includes under the physical stigmata of degeneration, in men of genius, the usual development and complexity of the third frontal convolution, especially on one side. He quotes the work of Herve [7] on Broca's convolution, in substantiating this observation, and further cites the morphological complexity of Broca's convolution in distinguished men, as described by R. Wagner, [8] and especially remarks the enormous size and numerous superficial folds in this region in the case of a jurist distinguished for oratorical aptitude.

The downward is not, then, the only direction, as the word degeneracy would imply, in which deviation may be found. Even Lombroso [9] does not claim that every genius is, as a whole, necessarily deteriorate. In fact, he warns against the exaggeration of deducing degeneration from single facts, though he has no other name for the most trivial of those facts than signs of degeneration.

If the ideal average normal individual, to whom reference has been made, could be galvanized into existence, his average normal modesty would surely make him hesitate to rank himself above all the geniuses to whom the term degenerate has been applied.

We sometimes meet acuteness of a special sense so remarkable that it suggests reversion even to a sylvan ancestry, rather than family decadence in the sense in which Nordau uses the term. The abnormal responsiveness to stimuli, sometimes seen in the so-called superior degenerate, reminds us of a similar tendency on the part of lower animals, a tendency representing in their case a survival of the fittest in eluding danger, rather than a sign of decadence. Even here, though it is true that the human being possessing these traits is apt to be so ill-balanced as to rank below the average normal, the term deviate would amply fill the requirements.

It would surely answer every purpose to substitute the word *deviation* in such statistics as those of Lombroso,[10] which state 4% of normal individuals have five or more signs of *degeneration*, as compared with 27.4% of delinquents

The words crime and criminal are supplemented by offense and offender, deliquent and delinquency, and nothing is now proposed more radical than similar alternatives for degeneration and degenerate. No one, I fancy, has ever objected to the word delinquent in the statistics just quoted, though this word is there intended to include the most hardened criminal, while degeneration is obliged in the same table to include the most insignificant signs of deviation.

Among the different factors entering into the question of heredity Mercier [11] calls attention to the wide difference between the children born of similar and those born of dissimilar parents. As

[7] La Circonvolution de Broca. Paris, 1888.
[8] Vorstudien, etc., 1st., Memoir, 1860.
[9] The Man of Genius. London, 1891, p. 9.
[10] Lombroso, in Twentieth Century Practice of Medicine, New York, 1897, p. 381.
[11] Mercier: Sanity and Insanity. Walter Scott, London, 1889, p. 156 *et seq.*

we approach the greatest possible similarity (namely that of marriage among members of the same immediate family), the tendency becomes greater to produce the lowest type of degeneracy. On the other hand, the greater the dissimilarity between the parents up to a certain point, the greater the tendency to produce an organism more vigorous than, and superior to, either of its parents. In the latter case there is also marked tendency to atavism. As the dissimilarity increases we may apparently look for precocity, rapid and exceptional intellectual development, together with the instability characteristic of the so-called superior degenerate. Great dissimilarity leads to wildness in the offspring, and extreme dissimilarity results in sterility. Mercier illustrates the tendency to atavism in fowls of dissimilar parentage, by Darwin's experiment of crossing the black Spanish with the silk-white fowl, and producing in the progeny a red plumage not appearing in either branch, excepting in the wild ancestor common to both. Here we have a stigma of far different type and bearing from the mental and physical results of inbreeding on the one hand, and the atavistic criminal tendencies of Lombroso on the other, neither, meantime, being of parallel significance, with the evolutional spurt seen in the remarkable development of Broca's convolution in the individual with unusual command of language. And a still further type is found in the results of infection in the embryo. If one term must be chosen to include all types with their modifications and gradations, it seems unfortunate that a name should be chosen which has, of necessity, a sinister significance, by no means uniformly appropriate. In the light of such considerations the use of the term deviation may even contribute toward a better understanding of the complex conditions with which we are concerned. And even if the word fails of adoption, the discussion will at least tend to clear the atmosphere and to lessen the resentment inevitably aroused by the word degeneration.

Even certain illustrious sufferers from convulsions, and allied serious signs of constitutional taint, have possessed intellectual qualities so far superior, not only to the average, but to the best, that their careers have made epochs in history. And, to cite one from many possessors of less serious signs, what shall we say of Carlyle, who as a boy was shy, proud and pugnacious, with strong affections and violent antipathies, whose indigestion and whose eyestrain have been in turn deemed the cause of his unfortunate disposition, all, whatever their interaction, being probably only signs of a constitutional make-up which included a psychopathic endowment? In later life he became so highly sensitized as to declare war upon his neighbor's poultry, and to have constructed a sound-proof room for his labors, labors which were themselves upon the highest intellectual plane. Must we call him a superior degenerate?

The very expression superior degenerate is anomalous, for if we still deem the individual inferior to the normal, superior is an inappropriate qualification to apply, and if we deem him equal or superior to the normal, the term degenerate is unfortunate. Indeed the expression almosts suggests the query, if a superior degenerate is less degenerate than an inferior degenerate, what degree would the supreme degenerate represent?

The term deviation may cover all variations from the average normal, whether above or below, or at the same level, in the intellectual, physical, moral or other scale. Nor need it necessarily be limited to the lighter grades of variation, but we may have, if you like, the minor and major deviate, whereas, the more appropriate the term degeneration when applied to stigmata, to individuals, to families, or to races showing unquestioned downward tendency, the more reason there is for keeping the word within its proper limitations, and especially of replacing, as far as practicable, that self-contradictory and unnecessarily opprobrious designation, superior degenerate.

CANCER OF THE RECTUM: COMBINED ABDOMINAL AND PERINEAL OPERATION.[1]

BY CHARLES A. POWERS, M.D., DENVER, COL.,

Professor of Surgery in the University of Denver; Surgeon to St. Luke's Hospital.

That the attempt at thoroughness which characterizes present operative procedure for cancer of the breast, lip, uterus and other organs, is extending to operations for cancer of the rectum seems to be manifest from the recent writings of Abbe, C. H. Mayo, Weir, Kocher, Kraske, Graudier, Quenu, Trendelenberg, and others. No better exposition can be made of the dissatisfaction which surgeons have felt with perineal and sacral methods in high-seated rectal cancer than that of Mayo in the *Journal of The American Medical Association* for April 25, 1903, nor can a better plea be offered for the combined abdominal and perineal operation (which Mayo attributes to Gaudier of Lille) than that set forth by him. This latter procedure has the advantage of permitting the operation to suit the case: either a palliative colostomy or the radical removal of the growth *en masse* with incisions wide of the growth itself and embracing all glands, fat and connective tissue; together with this the retention of the sigmoid as a fecal container and the placing of a permanent anus in the iliac region where it is most easily borne and managed by the patient.

Errors of technique in the single case reported herewith may be of service to others who undertake the procedure. At the risk of being tedious the case itself is given at some length. It is presented at this early day purely as an operative illustration. I believe it to represent a type of operation which will gain in favor.

Case. Mrs. W. Native of England. Forty-five years of age.

Previous history. — The patient has borne four chil-

[1] Read before the Colorado State Medical Society, October, 1903

dren, having no special trouble with any of them. She has had no symptoms referable to the genital tract. She was a well and strong woman up to six months ago, at which time she began to suffer from increasing constipation which was difficult to overcome by medicines. She found that her stools were getting smaller and painful, that a mucous rectal discharge began to appear. She went to a physician, who prescribed ordinary remedies. The difficulties increased, it became more and more troublesome to move the bowels and she began to lose in weight and strength. A little while ago she consulted Dr. M. Baker, who discovered a tumor of the rectum and kindly recommended her to me.

Present condition. — April 4, 1903. The patient is a rather spare woman five feet one inch in height. Her color is fairly good, she looks to be about forty-five years of age. Careful examination of the heart, lungs, kidneys and liver fails to disclose evidence of disease. Her appetite is fairly good, she eats moderately and digests well but has much difficulty in overcoming a chronic constipation. She says that the stools are small, ribbon-like, painful; that they are occasionally tinged with blood; that during the past few weeks there has been a thin rectal discharge. The bladder has given no trouble.

Local Examination. — A little above the anus there is an irregular, hard, nodular mass involving the circumference of the bowel and admitting with difficulty the end of the index finger. The finger crowded well up engages in the tumor. The tumor is movable and not particularly painful. The lower portion of it can be felt through the vagina, but the finger behind the neck of the uterus fails to define the upper limit of the mass. The uterus is in a posterior position, the tubes and ovaries are apparently healthy. Abdominal examination is negative.

Diagnosis. — Cancer of the rectum extending high. In view of the high seat and the good general condition of the patient combined abdominal and perineal excision was decided upon and the patient was carefully prepared with this in view.

Operation. — St. Luke's Hospital, 8:30 A.M., April 11, 1903. Chloroform was skillfully administered by Dr. F. W. Kenney. A short gridiron incision at the outer border of the left rectus permitted the introduction of an exploring finger. The rectal mass was felt low down. It was movable. No enlarged glands could be felt. Gauze packing was introduced into this incision. A median incision was rapidly made from the umbilicus to the pubes, the patient put in a high Trendelenberg position and the intestines carefully packed off. The uterus was drawn forward beneath the pubes. With wide lateral retraction the rectum was in easy view. It was again examined, confirming the exploratory palpation. A point in the sigmoid flexure was selected a little above the brim of the pelvis and the gut milked free of contents. Two heavy purse-string sutures of silk (according to Abbe) were rapidly applied; these were about two inches apart and involved the muscular coats of the gut. Midway between these purse-string sutures the gut was cut square across, the mesentery split down a little and the mesenteric vessels tied. Each end of the gut was then inverted and the purse-string stitches tightened. This completely shut off the lumen of each end of the gut from the operative field. Local packing was rapidly removed, the field sponged out, fresh packing applied and the instruments used in dividing the gut discarded. A comparatively clean operative area containing the two blunt rectal ends was now present. The lower end of the upper fragment was ready at any time to be brought out through the exploratory wound as an artificial anus. The mesentery of the upper end of the lower fragment was then divided downward until a point was reached at which the peritoneum began to shade off on the rectal sides. Here the peritoneum was split down a little on each side of the gut and then divided anteriorly. Below this point it was peeled up with a blunt scissors and the finger, thus rapidly separating the rectum. Posteriorly the superior hemorrhoidal artery was felt. This was doubly ligated; first with heavy catgut, after which the open mouth was picked up and tied with fine silk. Up to this point there had been but very little bleeding and from this time on the abdominal operative field was practically bloodless. The rectum with its posterior fat, fascia and lymphatics was cleanly dissected from the hollow of the sacrum and worked free to the lowest possible point. This was about on a level with Douglas' cul-de-sac. An assistant now passed a long dressing forceps through the vagina up behind the neck of the uterus. The point of this was cut upon from the abdominal side, the vaginal wound enlarged, the upper end of the segment of the rectum and the entire mass which had been dissected free being caught and dislocated into the vagina.[2] The abdominal wound was washed and the pelvic peritoneum stitched up. This peritoneal suture was difficult. It was deep in the pelvis and I had neglected to preserve quite enough peritoneum to allow the edges to come together without tension. For this reason the peritoneal suture took longer than it should have done. When it was completed, however, the pelvic floor presented something the appearance which it does after an abdominal hysterectomy, plus the presence of the uterus.

The lower end of the abdominal gut was brought out through the original lateral opening. The peritoneum on either side of the mesentery had to be cut a little to allow it to come up without tension. The abdominal packing was removed, the abdomen thoroughly flushed and the median incision sewn up. The gut was then rapidly stitched into the lateral opening, first by catgut stitches joining the edges of the parietal peritoneum to the visceral peritoneum. The purse-string stitch originally put in was removed and the mouth of the gut stitched to the skin. An occlusive dressing was applied to the median wound and a separate dressing to the artificial anus.

The patient was now placed in the lithotomy position, the buttocks well elevated, and the remainder of the operation completed from below. The upper portion of the lower fragment of gut was found in the vagina. The vaginal mucous membrane was split in the median line posteriorly and dissected from the rectum on either side. The anus having been sewn up, an incision was made encircling it and perineal excision of the rectum proceeded with from below, cutting widely on either side and posteriorly to the tip of the coccyx, working up in front of the coccyx and hugging it closely. In this way, keeping close to the coccyx and sacrum and dividing the posterior ligaments of the rectum, one was able to work up and meet the upper wound posteriorly. The rectum was then dissected up on either side, moderate downward traction being made on it. This was the most difficult part of the perineal operation; while working rapidly and with considerable traction the peritoneal stitches which had closed over the floor of the pelvis tore out and a loop of small intestine came down. This was pushed back with gauze and the rectum entirely removed. There was a fair degree of hemorrhage at the lower part of the perineal incision but practically none at the upper part. The only vessels which required ligation were the inferior hemorrhoidal arteries on either side. The wound was well flushed and the upper portion explored. An attempt was made to resuture the pelvic peritoneum from below but it was unsatisfactory. The wound was so deep that it was very difficult to get the peritoneal edges. As has been said, they did not come together easily from the abdominal side and as the patient had already been under chloroform over three hours it was judged wise to carefully pack off the pelvis. The vaginal mucous membrane was sewn up and a few perineal stitches put in. The cavity left in front of the sacrum and coccyx was a pretty big one. Laterally it was bounded by the obturator fascia. Its edges could not be approximated. It was lightly packed, in part with sterile gauze and in part with iodoform gauze and an ordinary perineal dressing applied.

The operation had been a long one, practically three hours and a half. The pulse was 72 at the beginning of the operation, it was the same throughout and at its close. But little blood was lost. But 15 drachms of chloroform were used. The patient was a thin and favorable subject and was in good condition. She was at all times under full surgical anesthesia and gave no trouble whatever. She was small of stature and the abdomen and rectum

[2] This mass in the male would be carried downward and backward toward the coccyx.

were particularly accessible. Perhaps fifteen minutes were lost in attempting to replace the peritoneal stitches which had been torn out.

The segment of gut measured 11½ inches in length in the fresh state. Four and three-quarters inches of this was above the upper margin of the tumor. The specimen was given to Dr. J. A. Wilder, pathologist to the hospital, who reports as follows.

"The specimen consists of 11½ inches of rectum with surrounding tissue and lymph nodes. The lumen of the rectum is partially occluded by an irregular nodular mass that begins 2¾ inches above the anus and extends upward 4½ inches, involving the greater part of the circumference of the gut but being at all points well within the lines of incision. There are numerous lymph nodes in the connective tissue behind the segment of gut above the mass but no enlarged lymphatics are found near the upper end of the intestinal fragment. Microscopic examination shows the mass to be an adenocarcinoma. The lymph nodes show cancerous invasion."

The patient vomited pretty constantly for thirty-six hours after going back to bed. Her pulse at the end of thirty hours was 108, it then dropped to 98. Forty-eight hours after operation her stomach was quiet, she was beginning to take nourishment. During the first thirty hours five pints of salt solution were infused.

The subsequent course was smooth. The median abdominal stitches were taken out on the seventh day and at the same time the silk stitches fixing the gut at the site of the artificial anus were removed. The median wound had been kept clean and both wounds healed primarily. The bowels were freely moved on the fifth day. At no time was there abdominal distention. A part of the perineal packing was taken out on the fourth day, a little more each day thereafter and on the eighth day cloroform was given when the vaginal and perineal stitches were removed and the high gauze packing, that which had held the gut in place, carefully taken out. The sacro-perineal wound closed down gradually and completely. The patient began to be up and about in the usual length of time. It is now six months since the operation. She has gained in weight and strength. The artificial anus behaves well; indeed, the fact that the woman satisfactorily pursues the occupation of cook in a private family would seem good evidence of this. The gridiron incision allows a fair "pinch" to the gut.

Clinical Department.

CESAREAN SECTION FOR PLACENTA PREVIA IN A PRIMIPARA.

BY WILLIAM N. SWIFT, M.D., NEW BEDFORD, MASS.

MRS. G. Thirty-four years. Married four years. Good family history. She had previous to her marriage been a school teacher and had been well. Menstruation regular. For six or seven years, rather profuse and with a great deal of pain. During pregnancy she had been well but had considerable abdominal soreness. Had no hemorrhages.

On May 11, 1903, had some abdominal pain and felt generally ill. Slept well that night, but the next morning had more cramps. Some of them quite severe. While sitting in a chair about one o'clock had a severe hemorrhage. It came on without warning and without pain. She said it felt as if something gave way. The hemorrhages continued and patient became faint. Dr. John D. Hilton of South Swansea had charge of the case and called Dr. A. S. MacKnight of Fall River in consultation. Dr. MacKnight made a diagnosis of placenta previa and advised Cesarean section.

I saw the case about ten o'clock. The patient showed the effects of a loss of a large quantity of blood. Her pulse was rapid but regular and of fair quality. The vagina was full of blood-clots with constant flow of fresh blood. The cervix was not entirely taken up and only admitted one finger. A soft mass could be felt through the cervix. The child was a vertix presentation with the back to the right. Immediate section was advised as the only hope of saving the mother and the only possible chance of a living child.

I operated at eleven o'clock, assisted by Dr. A. Martin Pierce of New Bedford and Dr. John D. Hilton. Dr. MacKnight gave the ether.

An incision was made in the median line and the uterus delivered. The uterus was opened on its anterior surface and the child delivered.

The placenta was found to cover the whole of the os, possibly a little more of it being on the right side. The membranes and placenta were at once separated and delivered. The placental site was wiped off with gauze. A gauze pad was packed over the placental site with the end brought down into the vagina. The uterus contracted well. There was almost no loss of blood either from the incision of the uterine wall or the placental site. A continuous catgut suture was put through the uterine mucous membrane and including a little of the uterine muscle. The rest of the incision in the uterus was closed by interrupted catgut sutures through the peritoneal coat down to the continuous suture. The abdominal wall was closed with interrupted silk sutures through all the layers in order to gain time, as the patient's condition was not good. The gauze was taken out without hemorrhage following.

Patient was put to bed in fair condition, having had a hypodermic of strych. sulph. gr. 1-30.

After stimulation and artificial respiration the baby (a girl weighing seven pounds) did well. The mother had very little lochial discharge. Her bowels were moved on the third day. She had very little rise in temperature and did well in every respect. Stitches taken out on the tenth day — one small stitch-hole abscess. Uterus freely movable, not adherent to abdominal wall.

On May 28 the patient had quite a severe hemorrhage. The nurse thought about a quart of blood. Patient was faint and nauseated. The hemorrhage did not recur. Patient is in good condition at present. Has menstruated regularly. The first few times rather profuse with some pain; now, less flow and very little pain. The mother had very little milk and the baby was fed. The baby has done well and is a strong, healthy girl.

My reason for reporting this case is its rarity. The conditions existing in this case, in my opinion, always demand Cesarean section if the patient's condition will permit, that is a primipara, with undilated cervix and central placenta previa. The operation was performed at the patient's house in the country by lamp light.

THE oil painting of Dr. Thomas G. Morton presented to the Pennsylvania Hospital by a number of contributors was unveiled on Jan. 11. The portrait was presented to the hospital by Dr. J. C. Wilson, on behalf of the Board of Trustees, and was accepted for the hospital by Dr. Arthur V. Meigs. Dr. Morton was connected with the institution for a period of forty years, many improvements and new buildings being added during this time as a result of his untiring efforts in its behalf. — *Medical News.*

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D., BOSTON.

(Concluded from No. 2. p. 45.)

REPORT UPON THE RESULTS WITH DIFFERENT KINDS OF PURE AND IMPURE MILK IN INFANT FEEDING IN TENEMENT HOUSES AND INSTITUTIONS OF NEW YORK CITY. A CLINICAL AND BACTERIOLOGICAL STUDY.[5]

THIS very important work was done in New York during the summers of 1901 and 1902 and the winter of 1901. It is impossible to take up in detail the methods employed and the results obtained. The reader is strongly advised to consult the original article which is well worth careful study. A few abstracts from the summary are appended.

" I. During cool weather neither the mortality nor the health of the infants observed in the investigation was appreciably affected by the kind of milk or by the number of bacteria which it contained," the different grades of milk varying much less in the amount of bacterial contamination in winter than in summer.

" II. During hot weather when the resistance of the children was lowered the kind of milk taken influenced both the amount of illness and the mortality. . . . The effect of bacterial contamination was very marked when the milk was taken without previous heating; but unless the contamination was very excessive, only slight when heating was employed shortly before feeding."

" III. The number of bacteria which may accumulate before milk becomes noticeably harmful to the average infant in summer differs with the nature of the bacteria present, the age of the milk, and the temperature at which it has been kept. When milk is taken raw, the fewer the bacteria present the better are the results. . . . Heat above 170° F. not only destroys most of the bacteria present but apparently some of their poisonous products. . . . "

" IV. When milk of average quality was fed sterilized and raw, those infants who received milk previously heated did, on the average, much better in warm weather than those who received it raw. . . . "

" V. No special varieties of bacteria were found in unheated milk which seemed to have any special importance in relation to the summer diarrheas of children. . . . "

" VII. Since a large part of the tenement population must purchase their milk from small dealers at a low price, everything possible should be done by Boards of Health to improve the character of the general milk supply of cities by enforcing proper legal restrictions regarding its transportation, delivery and sale. Sufficient improvements in this respect are entirely feasible in every large city to secure to all a milk which will be wholesome after heating. The general practice of heating milk which is now becoming a custom among the tenement population of New York is, undoubtedly, a large factor in the lessened infant mortality during the hot months."

" VIII. Of the methods of feeding now in vogue, by milk from central distributing stations unquestionably possesses the most advantages, in that it secures constant oversight of the child, and since it furnishes the food in such a form that it leaves the mother least to do and gives her the smallest opportunity of going wrong. . . . "

" IX. . . . Only the purest milk should be taken raw, especially in the summer."

" X. Since what is most needed is intelligent care, all possible means should be employed to educate mothers and those caring for infants in the proper methods of doing this. . . . "

" XI. Bad surroundings, though contributing to bad results in feeding, are not the chief features. . . . "

" XII. The observations indicate that close percentage modification of milk, although desirable in difficult cases, is not necessary to obtain excellent results with the great majority of infants, and that a certain adjustment of a healthy infant to its food is usually soon secured."

THE RELATION OF THE SURFACE AREA OF INFANTS TO THEIR NUTRITIVE NEEDS.

Lissauer[6] carefully measured twelve infants, studied the relation between the nourishment taken and the surface area in others, and thoroughly reviewed the literature. He comes to the following conclusions:

(1) The estimation of the nutritive need according to the weight gives reliable average figures only in infants developed in accordance with their age.

(2) The surface area of infants of the same weight is the same, independent of their age.

(3) The nutritive need of infants of the same age but of different weights is different. It is not proportional to the weight, but to the surface area.

(4) The nutritive need of infants of different ages but of the same weight is different even if the surface area is the same. The older infants who are backward in their nutrition have a much greater need. This need corresponds to that of the normal infants of the same age.

(5) The greater need of the backward older infants in comparison to the younger infants of the same weight is due to the relatively greater number of active cells, the fat tissue not having been formed on account of the backwardness of the nutrition.

(6) The differences in the nutritive need observed in infants of the same age and weight may perhaps be explained in the same way.

THE SERUM TREATMENT OF TYPHOID FEVER IN CHILDHOOD.

Josias[7] states that the antityphoid serum of Chantemesse shows in animals anti-infectious and

[5] Wm. H. Park, M.D., and L. Emmett Holt, M.D.: Archiv of Pediat., 1903, v. xx, p. 881.

[6] Jahrb. f. Kinderh., 1903, v. lviii, p. 393.

[7] Rev. d'Hyg. et de Med. Infant., 1903, v. ii, p. 209.

antitoxic properties. It acts especially by increasing the activity of the phagocytes and leucopoietic organs. It therefore shows its whole power only when the lymphoid and the myeloid organs are intact. For this reason the serum is most useful at the beginning of infection. For the same reason small doses only can be given when the intoxication is severe. He then quotes Chantemesse's results with his serum in adults.

He used Chamtemesse's serum in 50 cases of typhoid fever in children at the Bretonneau Hospital in Paris. He gave 1 cc. of the serum per each 30 kilos of body weight when the cases were seen at the beginning. Half of this dose was given when the cases were seen late or the symptoms of intoxication were very marked. In most cases only one injection of the serum was given. The children were also given cold baths. In all cases the diagnosis of typhoid was confirmed either by a positive Widal reaction or by rose-spots.

The serum had a definite action on the course of the fever. Ordinarily a more or less marked decline showed itself the same day. The fall of the temperature often continued regularly and rapidly to complete recovery. In most cases the serum hastened the termination of the disease. In certain severe cases which were treated late the serum apparently had no rapid action either on the temperature or on the duration of the disease. In most cases the general condition of the patients was very satisfactory. In a number of cases in which the injection of the serum was quickly followed by the fall of the temperature to normal there was without any apparent cause a sort of recrudescence of the disease of moderate severity and stopping spontaneously in from five to ten days. In four cases there was a definite relapse. Complications were exceptional. One case had peritonitis with perforation. Twenty-four of 169 children treated in other hospitals in Paris during the same time died, giving a mortality of 14.2%. Two of the 50 cases treated by the serum died, giving a mortality of 4%.

BACTERIURIA IN CHILDREN.

Mellin [8] was able to find in a search through the literature only 11 cases of this condition. Ten of these were in girls. He, himself, when he looked carefully for this condition, found 10 cases in a year. He thinks that the reason it has been found so seldom is that the physician rarely has the opportunity to get the fresh urine. Five of his cases were in boys, and 5 in girls. Nine of the children were between five months and four years of age; the other was ten years old. Bacteriuria seldom causes in children general symptoms such as fever, discomfort, vomiting and so on. It is accompanied somewhat oftener by slight and usually fleeting fever. Still more frequent are the mild cases in which the disease shows itself only by frequent micturition or by the odor and cloudiness of the urine. In these latter cases subjective symptoms are often entirely wanting. Intestinal disturbances are often associated with bacteriuria in children, and probably stand in a causal relation. In one of his cases the disease was secondary to an abscess about the anus and was cured when the latter was incised. All the earlier cases were due to the colon bacillus. He found this organism in eight of his cases, and the staphylococcus pyogenes albus in the other two. As a rule he found that the virulence of the bacteria to animals was slight.

The treatment of bacteriuria is simple. In the lightest cases regulation of the diet and the relief of the intestinal disturbance is sufficient. In the more severe cases he advises salol and irrigation of the bladder.

[8] Jahrb. f. Kinderh., 1903, v. lviii, p. 40.

RESEARCHES ON SOME FORMS OF SENSIBILITY AND ON THE STEREOGNOSTIC SENSE IN CHILDHOOD.

The authors [9] studied the interesting problem of the state of the tactile, thermal and pain sensations in infancy, as compared to adult life, as well as the development in infants of the so-called sense of location and position. As yet but few studies of similar character have appeared, and the present article offers the results of continued observations in a number of children. They found that the tactile sense was highly developed in children from two to eight years of age, with a very precise localization and limitation of the tactile circles. The sensation of pressure and that of heat were fully developed. The so-called muscular sense or the sense of attitude and the power of stereognostic perception were exact and precise. The sense of pain, however, as tested with the electric current, was deficient as compared to its development in the adult, and the authors conclude that this sense is a differentiation which occurs later in life through a probable summation of the general sensibility.

GONORRHEA IN INFANTS, WITH A REPORT OF EIGHT CASES OF PYEMIA.

Kimball [10] reports eight cases of pyemia in infants. Microscopic examination of the pus obtained from various joints showed in all cases diplococci with all the characteristics of gonococci and no other organisms. In six cases cultures of the gonococcus were obtained. In two others negative results were obtained on ordinary media. Autopsies were made in three cases. None of the usual local lesions could be found to explain the mode of entrance of the organism to the general circulation. There was a stomatitis in three cases. Kimball thinks that this stomatitis may have been gonorrheal in character and the source of infection. In another case a respiratory source of entry was strongly suggested by the post-mortem findings.

APOPHYSEAL OSTEITIDES OF ADOLESCENCE.

Comby [11] draws the following conclusion from the study of several cases:

[9] Cattaneo, Cesare and Marimo, Francesco: Pediatria. December, 1903, p. 993. Abstr. in Archiv of Pediat., July, 1903, p. 552.
[10] Med. Rec., 1903, v. lxiv, p. 761.
[11] Arch. de Méd. des Enfants, v. vi, p. 533.

In late infancy and adolescence there occurs in children who grow quickly a mild ostitis which especially affects the anterior superior tuberosity of the tibiæ. This ostitis is perhaps more common in girls than in boys. It usually is symmetrical but sometimes is unilateral or more marked on one side. It shows itself by a swelling appreciable both by sight and palpation but without heat or fluctuation. The chief symptom is pain. This pain occurs even during repose but is increased by motion, walking and pressure. There is no fever; the appetite is preserved; the general condition not affected. The duration may be long, but the disease always ends in resolution. The disease is easily recognized. The most efficacious treatment is rest in bed during a week, or more if that is necessary, and the application of iodine. When the patient gets up fatigue should be avoided. The food should be nourishing. Cod-liver oil and the glycerophosphate of soda are recommended.

IODOPHILIA IN DIPHTHERIA.

Weiss [12] examined the blood for the iodin reaction in 52 cases of diphtheria. He arrived at the following conclusions: The iodin reaction is not pathognomonic for diphtheria. It is absent in all mild cases and occurs only in the severe cases of diphtheria of the throat and larynx. When present it is due to the considerable infiltration of the tissues of the throat or neck or to disturbance of the respiration. These causes are demonstrable and amply sufficient to account for the phenomenon, and thus stand in marked contrast to the action of toxines, which can hardly be proved.

THE LEUCOCYTOSIS OF MEASLES AND GERMAN MEASLES.

Plantenga [13] examined the white corpscles in a considerable number of cases of measles and German measles. He found in measles a considerable hyper-leucocytosis of the polynuclear neutrophiles during the period of incubation. This hyper-leucocytosis was followed by an equally large hypo-leucocytosis of the polynuclear neutrophiles during the last days of the enanthem and during the exanthem. Occuring at the same time with this hypo-leucocytosis there was sometimes during the periods of the enanthem and exanthem a marked lymphocytosis. This was always accompanied by violent and persistent diarrhea as well as by a general enlargement of the lymph nodes. After the exanthem the number of leucocytes returned to the normal. If they did not there was some complication present. The same modifications of the blood were found in German measles as in measles.

He concludes that because of the identical blood conditions examination of the blood is of no use in the differential diagnosis between measles and German measles. The results obtained by the examination of the blood in measles and German measles are entirely in favor of the old idea that the two diseases are one and the same.

ACUTE AMAUROSIS FOLLOWING INFANTILE CONVULSIONS.

The authors [14] describe a series of cases of amaurosis, which they believe to be directly due to severe convulsions. Thus, the infants develop a series of convulsions with coma (resembling the status epilepticus of adults) and upon recovery are found to be blind and sometimes to be hemiplegic or aphasic. There was no evidence of meningitis. Ophthalmoscopic examination yielded negative results. They distinguish this form of blindness from the amaurosis, also without ophthalmoscopic signs, which may accompany or follow posterior basal meningitis in infants. They conclude (1) that there is a form of post-eclampsic amaurosis due to anesthesia of the visual centers, occurring in infants; (2) that the convulsions, which may be due to various causes, are apt to be severe and accompanied by coma; (3) that the amaurosis may be associated with aphasia of hemiplegic distribution; and (4) that the amaurosis is for the most part transient.

Reports of Societies.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING, HELD AT THE PIEDMONT HOTEL, ATLANTA, GA., DEC. 15, 16 AND 17, 1903.

THE President, J. WESLEY BOVEE, M.D., Washington, D. C., in the chair.

A STUDY OF THE PROSTATE AND TREATMENT OF PROSTATIC HYPERTROPHY.

DR. G. WILEY BROOME, St. Louis, Mo., showed a number of hypertrophied prostates that he had removed. Approximately, he had made two hundred post-mortem examinations to investigate the condition of the bladder and prostate in each subject. He said it was generally maintained by routine prostatectomists that all prostates had a capsule, but this was not true.

He drew the following conclusions: (1) The position of the urethra in the normal state was always in the floor of the bladder; but in cases of urinary obstruction it was always elevated from an inch to an inch and a half or two inches above the floor of the bladder. (2) Normally there was no third lobe, but that segmentation took place behind the prostatic fissure in consequence of a hyperplastic process, this process occurring in the direction of least resistance — into the cavity of the bladder. (3) Only a small percentage of cases of hypertrophied prostate was responsible for urinary obstruction. (4) No matter how large the prostate became, it would retain

[12] Jahrb. f. Kinderh., 1903, v. lviii, p. 55.
[13] Archiv. de Méd. des Enfants, 1903, v. vi, p. 129.
[14] Dr. Henry Ashby and Mr. Sydney Stephenson: Pediat., June, 1903, v. xv, No. 6, p. 348.

its functionating capacity. It was not the prostate which caused suffering to the patient. (5) By prostatectomy this functionating organ was mutilated or destroyed, and the bladder, which really caused the patient trouble, was left *in situ* without any operation having been performed on it. (6) In only a small percentage of cases could the prostate be enucleated. (7) It was unfortunate that the profession had reached the point of resorting to routine prostatectomy in all cases of urinary obstruction. (8) The commissure and capsule were obliterated in the fibromyomatous variety of prostate. In the adenomatous variety, if complete and permanent drainage was established, the prostate would shrink.

DR. C. H. MAYO, Rochester, Minn., had operated by the median perineal method in over thirty cases after the manner of Goodfellow, and had been much pleased with the method and results.

DR. W. P. CARR, Washington, D. C., had seen only one prostate where there was any difficulty in peeling it out of its capsule. Cases of hypertrophied prostate should be operated upon earlier, before the bladder became infected. Prostatectomy in healthy men had a very small mortality, but in those who had infected bladders, who had Bright's disease, or atheromatous arteries, it was a serious operation.

DR. BROOME, in closing, deplored the tendency to do routine prostatectomy regardless of the actual pathological conditions of the parts.

EDEMATOUS ENCEPHALITIS.

DR. W. P. CARR, Washington, D. C., called attention to a condition of the brain that he had encountered quite frequently when operating for cerebral epilepsy and for suspected cerebral abscess following mastoid disease due to influenza. This condition he called edematous encephalitis. It was apparently so much benefited by opening the skull and draining the excessive serum from the brain, that it deserved careful consideration. He reported four cases. In cases of severe cerebral symptoms following influenza or blows upon the head, where the symptoms persisted or became worse after weeks of medical treatment, he thought that exploration was justifiable in the hope of finding edematous encephalitis or some other condition that would be benefited by operation. In operating for edematous encephalitis he recommended that a large osteoplastic flap be cut with the De Vilbiss craniotome over the site of any injury that might be suspected as a cause, or over some location indicated by the symptoms. If the symptoms furnished no local indication, and there was no local injury, then the flap had best be turned down in a convenient place, say the upper parietal region. The exposed membranes and brain substance should be examined carefully, and if they presented an edematous appearance a grooved director should be introduced into the brain substance carefully in several places, and the serum drained off until the brain assumed a normal appearance. A small soft drainage tube should be inserted just through the dura into the arachnoid space and left in place as long as there was a copious discharge of serum. This tube might be brought out through one of the small trephine holes made for the introduction of the De Vilbiss instrument, and stitched to the skin after an osteoplastic flap had been replaced. If the head was carefully shaved and scrubbed, and all proper antiseptic precautions taken, this operation was almost free from danger; and if only a small percentage of the serious cases could be cured in this way, the operation would be justifiable. He had been encouraged by his limited experience to believe that surgeons might hope for recovery or great improvement from this operation in many otherwise hopeless cases of epilepsy and of progressive brain disease due to trauma and influenza.

A NEW DEVICE AND METHOD FOR INTESTINAL ANASTOMOSIS.

DR. CARR said he had devised a method of intestinal or gastro-intestinal union by small silver clamps, which he thought were more easily and quickly applied than the Murphy button. These clamps were exhibited. He had used them in one case of resection of five inches of gangrenous ileum caused by strangulated hernia. The man recovered and the clamps were recovered between the sixteenth and twenty-first days.

DR. C. H. MAYO said he and his brother had operated on many cases of epilepsy and traumatic insanity, and he could corroborate what the essayist had said regarding edematous encephalitis. Treatment by drainage came the nearest to the solution of affording this class of cases relief.

DR. I. S. STONE mentioned a case, in referring to Dr. Carr's clamps, in which gastro-enterostomy was performed about a year ago, with the aid of the Murphy button, but the button had not yet been passed.

In another case of diverticulum with obstruction, the button was used, but the woman was still carrying it with some anxiety. Thus far, however, there were no symptoms of intestinal obstruction from the retention of the button.

DR. GUY L. HUNNER objected to the use of all mechanical devices and favored suturing the intestine, although he thought the simple device exhibited by Dr. Carr would enable surgeons to do intestinal anastomosis rapidly.

DR. J. GARLAND SHERRILL advocated suturing the bowel in preference to the use of mechanical aids. In his intestinal work he preferred silk.

THE SURGICAL PHYSIOLOGY OF THE LYMPHATIC SYSTEM.

DR. C. H. MAYO, Rochester, Minn., said that a study of the lymphatic system readily explained many normal physiological as well as pathological processes. All tissues were provided with lymph vessels and glands in direct proportion to their exposure, activity and necessity for repair.

The tissues of the body were constantly bathed in lymph, which fluid, similar to and derived from the blood plasma, must all pass through the lymph vessels and glands. In the glands the lymph was exposed to the direct action of the leucocytes which were there found in great abundance. It was in the glands that infection was checked, and destroyed, or it might possibly overpower the glands and develop local growth. An enlarged gland was an evidence of a local struggle and a defeat. The lymph system undoubtedly performed a great function in draining the ductless glands.

Considering the lymph supply of certain organs, it was found that the brain was deficient in lymphatics in its structure, the arachnoid serving this purpose upon its surface. Hemorrhages into its structure became cysts from lack of absorption and infections of its substance caused but little temperature or general disturbance except from pressure. Liver and kidney showed the same condition in a less marked degree.

The lungs, rich in lymphatics, gave constant temperature from infectious diseases. Chills usually signified the direct delivery of accumulations of infection into a vein. In certain diseases resulting from a loss of equilibrium between the production and absorption of fluids, one set of lymphatics was substituted for another by operation, as in glaucoma and hydrocephalus.

When lymphatic conditions were considered in connection with surgical work, it was found that there was a real principle involved in drainage, whether it be internal or external.

Dr. Mayo then discussed the varieties of drains and drainage adjuncts.

EARLY DIAGNOSIS OF CANCER OF THE UTERUS.

DR. F. F. SIMPSON, Pittsburg, Pa., said that early in 1900 a note was addressed to the health departments of American cities with an aggregate population of ten millions, requesting a tabulated statement of deaths from cancer and from all causes during each year of the preceding decade. Statistics showed that of every fourteen people who reached the age of thirty, cancer would claim one as its victim. Bearing more directly upon the subject of cancer of the uterus, however, was the distressing fact that of every twenty-eight women who passed the age of thirty, one would be the victim of this disease.

The paper was largely statistical, and the author closed by saying that the day was fast approaching when well-informed women of the cancer age would seek protection by regular quarterly examinations. Early diagnosis would then be the rule in cancer of the uterus as it was in appendicitis to-day.

FRACTURE-DISLOCATION OF THE SPINE.

DR. J. SHELTON HORSLEY, Richmond, Va., reviewed the opinions of several authorities on the treatment of this lesion. He advocated the plan of McCosh to operate in all cases of complete paralysis below the injury unless there was improvement within twenty-four hours after the injury. When the trauma was especially marked, he operated sooner. He pointed out that the danger of delay lay in degenerative changes in the spinal cord which set in soon after the injury. Early operation might arrest this degeneration.

He reported six cases, in two of which the injury was received several years before he saw the patient. In one there was a forward dislocation of the axis and atlas from the third cervical vertebra. This was demonstrated by a skiagraph. The patient had paralysis of the muscles of the arm, body and thighs. There were disturbances of sensation of various degrees over the body and limbs. He reported two other cases in which fatal results rapidly followed the injury. One was from a gunshot wound and the other was the result of a fall on the shoulder in which there was a fracture-dislocation in the lower dorsal region. In one of the last two cases he operated upon there was an injury at the lower dorsal region where the whole of the dorsal spinal column was dislocated forward upon the lumbar spinal column. The spinous process of the last dorsal vertebra was fractured. The cord was caught between the last dorsal and the first lumbar as between the blades of a pair of scissors. It was not completely crushed, as the dislocation was not extensive enough. It was impossible at the operation to reduce the dislocation, so the spinous processes and the laminæ of the last three dorsal vertebræ were removed. This relieved the pressure on the cord. The patient died, however, from pneumonia a week later without any improvement in the spinal symptoms. A post-mortem examination showed the wound in an excellent condition, with the cord softer than at the time of operation, and solidification of the whole lower lobe of the right lung, and a part of the middle lobe. In the other case operation was undertaken about a month after fracture of the eleventh and twelfth dorsal vertebræ in a laborer, nineteen years of age. The cord was almost completely gone, there being a few fibers remaining from its anterior portion. The laminæ had been fractured and driven into the canal. One of the articular processes had also been driven into the canal. These were removed, and the wound closed, leaving a small catgut drain. There was no decided improvement in his condition for six weeks after the operation. At this time he urinated voluntarily.

Two weeks later there was noticeable improvement in both sensation and motion in the thighs. This improvement continued until the present, about three years after operation. His thighs were practically normal as to motion and sensation. Bladder and rectum acted naturally, and his general health was excellent. He could stand with support and walk by having a strong support on each side. His legs and feet were still paralyzed both as to motion and sensation. At present the patient weighed nearly two hundred pounds and was quite comfortable, except for occasional pains in his legs.

NEOPLASMS, WHEREVER SITUATED, SHOULD, IF POSSIBLE, BE REMOVED, WHATEVER THEIR APPARENT NATURE.

Dr. Maurice H. Richardson, Boston, Mass., considered chiefly neoplasms of the breast and of the female pelvis in a paper on this subject. The reasons which justified the adoption of the title rule in these regions would apply with certain exceptions to all parts of the body. These reasons, all of which were illustrated by specific cases, in the author's own experience, were as follows:

(1) The uncertainty of the diagnosis, even on the part of the most experienced and the most skillful, made palliative treatment hazardous, especially in the doubtful cases. Several instances were given in which the patient was not operated upon because the tumor was supposed to be benign when, in reality, it was malignant. The error cost the patient the favorable moment for operation. The impossibility of accurate diagnosis in even the most accessible regions of the body was emphasized. Breast tumors apparently benign had proved malignant. Breast tumors benign throughout their principal area showed minute foci of malignancy. Breast tumors clearly benign had after many years developed a fatal malignancy. So in abdominal tumors, especially the pelvic tumors in women, the difficulties of diagnosis made the apparently benign cases dangerous. Many instances were given illustrating the difficulties of diagnosis and the necessity for exploration in even the most favorable cases of presumably benign growths.

(2) The dangers of benign tumors becoming in time malignant was emphasized and illustrated by not a few cases in which after years of slow and harmless growth a tumor had suddenly developed evidences of malignancy. Tumors of the breast, of the gall-bladder, the stomach, the uterus, the ovary, and of other regions had by an acquired malignancy convinced the speaker that the only safe rule of treatment was in all cases thorough extirpation of the tumor as early as possible.

(3) The wisdom of exploration in certain apparently hopeless tumors was illustrated by cases in which a benign and easily remediable condition was found, and in which impending death was averted by a safe operation. In this class were infiltrating tumors of the abdominal wall supposed to be hopelessly malignant, but which proved to be tuberculosis of the muscle aponeurosis; epigastric tumors, apparently cancerous, found to be pancreatic cysts, actinomycosis, chronic pancreatis and the like; pelvic tumors supposed to be malignant and inoperable were proved to be old tubal inflammations, fibroids, ovarian cysts, and the like.

(4) The essential malignancy of certain areas in the malignancy-inviting nature of certain regions, especially the breast and the ovaries, was especially emphasized. In these regions the tendency of tumors to become malignant made the application of this rule practically imperative. Ovarian tumors, even when apparently benign, were shown to have especially dangerous tendencies to malignant degeneration.

(5) In pelvic tumors especially, the benign often masked the malignant. Cases were reported to illustrate the obscuration of a uterine sarcoma by an overlying fibroid. In two recent cases cancer of the ovary was found concealed by an enormous fibroid, and in a third there was found an annular stricture of the sigmoid flexure.

The rule of universal extirpation had numerous exceptions. It should not apply to superficial tumors, clearly benign, which could not be removed without great disfigurement; keloids that could not be removed without leaving a broad scar, unless they showed a tendency to ulceration and malignancy; all other benign tumors, which caused needless suffering, disability and disfigurement, whenever their removal was dangerous, or whenever the patient's general condition was unfavorable; and tumors of all kinds in which the dangers and sufferings of removal outweighed the dangers and sufferings of the tumors themselves.

INTESTINAL CANCER.

Dr. J. Garland Sherrill, Louisville, Ky., stated that cancer of the intestine, while rare, was more frequent than physicians were led to believe; that sarcoma was much less frequent than carcinoma, and selected especially the small intestine, while carcinoma most often attacked the large bowel. The appendix was the seat of both carcinoma and sarcoma, although occurring quite infrequently. The literature showed that men suffered from both forms oftener than women. Adeno-carcinoma was the type most frequently seen, while the round-celled sarcoma or the lymphosarcoma occurred oftenest.

The author reported two cases of cancer of the intestine. The treatment was to be largely determined by the extent of the involvement. Resection of the intestine and extirpation of the growth offered the patient the only hope of a permanent cure, and this chance, though slight, should be given the patient whenever parcticable, as early in the course of the disease as possible. Any of the classic methods might be employed.

AMPUTATION OF THE HIP JOINT FOR SARCOMA, WITH A REPORT OF SEVEN CASES.

In a paper on this subject, Dr. Wm. B. Coley, New York, said that the tumor originated in the bone or periosteum of the femur in five cases, and in the soft parts in two. The age of the patients ranged between six and fifty-six years. In six cases Wyeth's pins were used, but in the seventh case the growth extended above Poupart's ligament; pins could not be used, and the external iliac artery was first tied. All of the patients made a good recovery from the operation; yet only one patient survived operation long enough to be called a cure. This was a

sarcoma of the thigh in which the mixed toxins of erysipelas and Bacillus prodigiosus were used for two months before amputation. In one recent case the patient was still alive without recurrence; in all the other cases death occurred from local or general recurrence in from four months to two years after amputation. Of four other cases of sarcoma of the femur and thigh, treated by high amputation just below the trochanter, two patients died at the end of four months; one died at the end of two and a quarter years, and a third had recurrence in the gluteal region, which disappeared under the mixed toxin treatment, and the patient was alive at present without recurrence, six years afterwards.

The extraordinary malignancy of sarcoma of the femur was shown by the very small number of patients known to have survived for more than three years after the amputation. Butlin was able to find but one case in sixty-eight treated by high amputation or hip joint amputation. Wyeth, in 1901, collected 131 cases treated by hip joint amputation with ten alive more than three years. Dr. Coley stated that he had personally known of but six cases. In one of these cases (Dr. Bull's), operated upon sixteen years ago, a severe infection occurred in the wound, probably streptococcus, and the patient was well six years later. In another case (Dr. Gerster's), the disease was so extensive and so high up that amputation was considered impossible, and the patient was treated with the mixed toxins of erysipelas and Bacillus prodigiosus for several months. The tumor disappeared and the patient was shown to the New York Surgical Society a year ago in perfect health, more than four years after treatment.

The better results following amputation in the pre-antiseptic days the writer attributed to the infection that frequently occurred in the earlier period. This fact, together with the results referred to, in which the erysipelas toxins were used, he believed sufficient reasons for advocating the systematic use of the toxins after primary amputation as a prophylactic against recurrence. He would not advise such treatment prior to amputation in sarcoma of the femur, on account of the great liability to early metastases, although in a case of sarcoma of the tibia he had been able to save the leg, and the patient was now well seven years afterwards.

The method of treatment advocated by Mikuliez, namely, resection of the femur, Coley did not think should be adopted as a substitute for amputation. While it was true a fairly useful limb might be obtained by resection, there were no cases treated by this method that had been observed for longer than a year, hence nothing could be said as to permanent cure.

The x-ray, Coley believed, should never be used unless the patient absolutely refused amputation. One such case he had treated two years ago (round-celled sarcoma of femur); the tumor apparently entirely disappeared from the femur, but ten months later a large metastatic tumor appeared by operation. A little later another very large tumor appeared in the lumbar and iliac regions. Under long-continued treatment with the mixed toxins plus the x-ray, the tumors disappeared, and the patient was alive and well to-day, although by no means regarded as cured.

DIAGNOSIS AND TREATMENT OF GALL STONES.

DR. MACK ROGERS, Birmingham, Ala., read a paper on this sbuject. After referring to the differential diagnosis, he spoke of the operation for the removal of stones from the gall bladder, saying that where there were no adhesions it was comparatively easy, but when the stone was located in the common duct, or extensive adhesions existed, or both, the surgeon had a very difficult condition to deal with. The mortality in all cases from the operation averaged only about 3%.

SURGERY OF URINARY TUBERCULOSIS IN WOMEN.

DR. GUY L. HUNNER, Baltimore, Md., reported thirty-five cases occurring in the services of Dr. Howard A. Kelly and his associates in Baltimore. These patients were all women with an average age at the onset of symptoms of twenty-eight years. The disease was unilateral in thirty-one of the cases, and it was probably primary in the kidney, as regards the urinary system, in thirty or more of the cases. Thirty-one cases had bladder symptoms at some time in the course of the disease, although only eighteen cases had bladder lesions at the time of operation. Eleven of these eighteen cases still had some bladder symptoms, and five were known to have bladder lesions, although nine of the eleven had had systematic bladder treatment. Tuberculosis of the bladder did not heal with the ordinary methods of treatment, and if the disease persisted a year and did not occupy more than half of the bladder, it should be excised. Of twenty-two ureters examined microscopically, seventeen showed tuberculosis, while five were chronically inflamed. If a tuberculous ureter remained either in part or *in toto*, the wound usually remained open at least two years, while the removal of a ureter with the kidney resulted in rapid closure of the wounds. Five cases died — three after six and eleven weeks and two years respectively, from involvement of the other kidney, and two, in fifteen and six days, because of the operation. Sixty-six per cent of the patients were enjoying fairly good or excellent health.

(To be continued.)

RADIUM IN AN ITALIAN RIVER. — Dr. Francolini of Rome, Italy, has published a statement to the effect that the source of the Clitumnus, a small Umbrian river sacred to the Romans, may contain radium, basing his opinion on a description by Pliny and on passages in the works of many writers and poets from Virgil to Byron. — *N. Y. Medical Journal.*

Recent Literature.

Rational Home Gymnastics. For the "Well" and the "Sick," with Health-points on Walking and Bicycling, and the use of Water and Massage. By HARTVIG NISSEN. With illustrations of Exercises for Women contributed by BARONESS ROSE POSSE. Revised and enlarged edition. Boston: E. H. Bacon & Co. 1903.

This small volume of 132 pages is devoted to a discussion of rational home gymnastics. The illustrations are so numerous that the various movements suggested are graphically represented in practically every instance. Baroness Rose Posse gives in addition a series of illustrations of exercises for women which should be of service in indicating proper methods. The book is suggestive and should be useful as a guide for those undertaking gymnastic exercises of this type without an instructor.

A Treatise on Diseases of the Rectum, Anus, and Sigmoid Flexure. By JOSEPH M. MATHEWS, M.D., L.L.D., President of the American Medical Association, 1898; Professor of Surgery and Clinical Lecturer on Rectal Diseases at the Hospital College of Medicine, etc. Third edition, revised. New York: D. Appleton & Co. 1903.

The author has devoted many years to the study and teaching of rectal diseases. The amount of original work which has been done in this subject as well as the fact that the second edition was exhausted has induced Dr. Mathews to produce a third one. This new volume of 589 pages presents the subject generally and specifically. The introductory chapters describe the methods of examination of patients, the anatomy of the rectum, special instruments of diagnosis, constipation, anesthesia and rectal antiseptics. The remainder of the book treats of hemorrhoids, fistulæ, ulceration, non-malignant stricture, carcinoma (under which both the operative and the palliative treatment is discussed), diseases of the "Sigmoid," prolapse, malformations, polypi, etc. The book is illustrated with six chromo-lithographs, rather lurid in character, and numerous cuts.

Much has been added to the earlier editions which is new and of importance to those interested for any reason in rectal diseases. The chapter on "Cancer" has been rewritten to bring the subject up to date and introduce the more recent ideas relating to etiology. The author calls attention to several operations of which he claims to be the originator, *viz.:* A method of colopexy for extreme cases of rectal prolapse; a new operation for hemorrhoids which might be termed an excision; a plastic operation for pruritus ani. Also an operation for rectal prolapse of moderate degree.

The book is a "readable" one, with clear type and pages agreeably free from the luster of a highly finished calendar paper. It is forcibly and positively written. The subject matter, both etiology, diagnosis and treatment, is often emphasized by illustrative clinical histories of actual cases which have come under the author's personal observation. He also often quotes in support of his statements, or to present the prevailing ideas on the subject under discussion, the opinions of other specialists, notably Allingham, Cripps, Tuttle, Kelly, Agnew and Kelsey; so that one feels after reading that a fairly comprehensive view of the subject has been obtained. The book contains many practical suggestions and details of treatment which are of value. It impresses one that its author is thoroughly convinced that his statements are supported by facts which will bear the test of actual trial by others.

Surgery, Its Theory and Practice. By WILLIAM JOHNSON WALSHAM, F.R.C.S. Eng.; M.B. and C.M., Aberd.; Surgeon, formerly Lecturer on Surgery and Anatomy, St. Bartholomew's Hospital; Member of the Court of Examiners, Royal College of Surgeons of England; Consulting Surgeon to the Metropolitan Hospital, to the Hospital for Hip Disease, Sevenoaks, and to the Cottage Hospital, Bromley; Late Surgeon in Charge of the Orthopedic Department, St. Bartholomew's Hospital; Examiner in Anatomy to the Conjoint Board of the Royal College of Physicians and Royal College of Surgeons, and University of Aberdeen; and Examiner in Surgery to the Society of Apothecaries. Eighth edition. With 622 illustrations, including 20 skiagram plates by WALTER GEORGE SPENCER, M.S., M.B. (Lond.); F.R.C.S. Eng.; Surgeon to the Westminster Hospital. Philadelphia: P. Blakiston's Son & Co. 1903.

Thirty-eight thousand copies of this book have been published and in this eighth edition Mr. Walsham was aided by Mr. Walter G. Spencer. The book is so well known that an extended review is hardly necessary. Some of the illustrations are rather antiquated. The book shows evidence of a great deal of care having been taken to bring it thoroughly abreast with the times. The book may well be accepted as a representative text-book of English surgery.

Modern Bullet Wounds and Modern Treatment, with Special Regard to Long Bones and Joints, Field Appliances and First Aid. By MAJ. F. SMITH, D.S.O., Royal Army Medical Corps. London: J. and A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1903.

This little volume of 99 pages is a reprint of part of the essay to which was awarded the Alexander prize for 1903; a prize awarded triennally from a fund instituted to perpetuate the memory of Thomas Alexander, C.B., the Director-General of the British Army Medical Corps from 1858–1860.

The brochure treats of the injuries of the large bones of the upper and lower extremities, and the

joints with which these bones are associated. The opinions of the author are based on his experience, derived from the Boer war and other campaigns. Wounds by older firearms are compared with those resulting from projectiles from modern weapons. The injuries are grouped into: (1) Contusions with injury to the periosteum without fracture. (2) Partial fracture without much impairment of function. (3) Complete fracture. (4) Comminuted fracture. (5) Any of the above involving a joint. (6) Injury to joints without injury to bones. These different lesions are described and discussed. The results of previous campaigns, where different weapons and methods of treatment were used, are compared with present methods and results. Major Smith enumerates his reasons for these improved statistics by modern methods of treatment. This discussion occupies a greater part of the book. The points are interestingly presented and the author's opinions are frequently emphasized by quotations of personal observations. Many practical points of diagnosis and treatment the value of which has been actually and personally tested are incidentally introduced.

The concluding pages are devoted to the consideration of splints for actual field service (a subject very briefly presented) and a short discussion of the management of " First Aid " on the " firing line."

The book impresses one as the work of a man who has formulated his ideas from personal observation, and it makes interesting reading when compared with the more theoretical and elaborate treatises on military surgery.

Essentials of Pelvic Diagnosis, with Illustrative Cases. By E. STANMORE BISHOP, F.R.C.S. Eng.; Hon. Surg. Ancoats Hospital, Manchester; Vice-President British Gynecological Society, London; Ex-President Clinical Society, Manchester, etc.; and an Appendix on Examination of Blood, etc., by CHARLES H. MELLAND, M.D. (Lond.), M.R.C.P., Hon. Physician, Ancoats Hospital, Manchester, etc. New York: William Wood & Co. 1903.

This is a volume of 297 pages, attractively published by William Wood & Co. The author adopts the deductive method of teaching diagnosis. As he puts it, " Procedure on the inductive principle is the very reverse to that upon which all men in practice are called upon to act. In practice, the symptoms are known, the disease is not. It has to be deduced; and this work is an attempt to make this mental process with regard to pelvic diseases more easy."

The treatment of the subject is best outlined by the Table of Contents. Part I is headed " Methods of Diagnosis," and contains chapters on The Use of the Hand; The Position of Patients for Purposes of Diagnosis; The Use of Instruments for Diagnosis; and Pain as a Factor in the Diagnosis of Abdomino-Pelvic Disease.

Part II is called " Lines of Diagnosis," and the chapters are as follows; Class I: Swellings of the Abdominal Wall Itself. Class II: Conditions affecting Perineum, External Genitals, and Inguinal Region. Class III: Diseases affecting the Vagina, Rectum, Bladder and Prostate, diagnosable by Touch, Specula, Cysto- and Proctoscopes. Class IV: Swellings in the Pelvis, felt bimanually. Class V: Swellings of Pelvic Origin, which have developed into the Abdomen.

Part III is devoted to Diagnostic Tables; Part IV to Illustrative Cases, and Part V is the Appendix containing the Examination of the Blood and Examination for Tubercle Bacilli and Gonococci, and also, the Index, which is of especial value to the practitioner who happens to have been trained by the inductive method, or to the student who has a suspicion as to the identity of the disease he is seeking.

It would seem as if the author had distorted the symptomatology of some of the diseases of the pelvis in order to make them fit into his tables, unimportant symptoms being given undue prominence and important ones placed in the background or omitted. Nevertheless, the book has a distinct value for the elementary student, founded as it is on an ample clinical experience and written in a clear, forcible style. For the advanced student and the practitioner, to our mind, the inductive method of teaching is to be preferred as affording a much clearer and more accurate picture of each disease.

Adenomyome des Uterus. VON THOMAS S. CULLEN, Hülfsprofessor der Gynäkologie an der Johns Hopkins Universität, Gynäkologischer Assistent am Johns Hopkins Hospital in Baltimore, U. S. A. Mit 45 Abbildungen im text. Berlin: Verlag von August Hirschwald. 1903.

This book of 91 pages is an article written by Dr. Cullen for the festschrift in honor of Prof. Johannes Orth to celebrate the twenty-fifth year of his professorship.

Adenomyoma is treated in detail. It is a distinct pathological condition which may be diagnosed both by gross appearances and by the microscope. It is non-malignant and does not return when removed. Adenocarcinoma may be engrafted on adenomyoma or may exist independently in the same uterus.

Dr. Cullen distinguishes three types:

(1) Adenomyoma with little change in the normal shape of the uterus.

(2) Subperitoneal or intraligamentary adenomyoma.

(3) Submucous adenomyoma.

The etiology, diagnosis, prognosis and treatment of adenomyoma and its relation to adenocarcinoma are carefully discussed. Cases of adenomyoma of the bones, of the uterus and of the round ligaments are reported.

The article is well illustrated by numerous cuts and is a valuable addition to our knowledge of the diseases of the uterus.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JANUARY 21, 1904.

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THE FINANCIAL PROBLEM OF THE NEW YORK HOSPITALS.

ATTENTION is called, in the current number of *Charities*, to the financial problem connected with the adequate maintenance of the hospitals in New York. One hardly realizes the extraordinary change which has taken place in such institutions during the past fifty years, unless attention be called to the matter. The growth and development of hospitals has been particularly active in the immediate past, and further inlargements and improvements, which are projected, will entail an added expenditure of between six and seven million dollars. More than half a million dollars has recently been expended for the further equipment of hospitals under the jurisdiction of the department of public charities.

With the increasing knowledge of methods of caring for the sick, together with the elaborateness of new hospital buildings, it has happened that the cost of maintenance has been very materially increased. The prejudice against hospitals has practically disappeared, and this fact, together with the very great difficulty of treating patients by modern methods at their homes, has necessitated this remarkable growth of hospital facilities. This has meant an increasing financial strain, so that the situation has now reached a critical point. A table, showing the financial burden which is being carried by twenty hospitals, is appended, giving an annual deficit of $432,268. Of this amount one hospital, the Lying-in, alone carries upwards of $88,000, and the Presbyterian is very near that figure. This deficit of nearly $450,000 has accumulated in the short space of one year, and that a year of great financial prosperity.

Various methods must be adopted to meet this deficit, one of the most important of which undoubtedly is by taking such portions of accumulated endowment funds as are not restricted, but which heretofore have been kept for income-producing purposes alone. Legacies to hospitals are too uncertain to permit of dependence. The natural question arises as to how the receipts of the hospital may be increased.

At present the income of hospitals comes from paying patients, from endowments, legacies, donations, and an allotment from the Hospital Saturday and Sunday Association, with a certain allowance from the city in some cases. It is undoubtedly true that in certain institutions there are increased receipts from pay patients, but this does not necessarily help those who can afford to pay little or nothing. Income from endowments is, in many cases, decreasing, and legacies are too uncertain to count upon. Donations again are not a hopeful source of increase in income. The conclusion, therefore, is reached that the deficit must be met by other means than these. With the very great added expense which the city is undertaking for the betterment of its own hospitals, it is not likely that it will view with approbation a suggestion to increase the amount it is now paying to private institutions.

It may be seen from the foregoing that the situation is not encouraging. There is a marked tendency toward the building and equipment of hospitals, which, under present conditions, must be maintained at a constant loss. *Charities*, in the paper by Frank Tucker to which we are referring, takes the bull by the horns and suggests that an endowment fund of ten million dollars be raised for the hospitals of New York. The income of this amount is required to provide for the present annual deficit. The method of raising such a fund must be through the work of an independent body of representative citizens, and when raised it should be held only for purposes of income. This suggestion strikes one at first as somewhat bold, but the cause is a good one, and if persons of wealth are made to realize this fact, experience amply shows that they are quite willing to give. However this may be, it is apparent that some remedy must be sought if hospitals are to go on developing in proportion to the need and growth of the population. There are those who believe that a limit should be set to the foundation of hospitals on an essentially

charitable basis, among whom may be mentioned Bishop Potter, of New York, who regards the growth of institutionalism as a possible menace. The weight of opinion will, however, no doubt be in favor of a conservative but continually increasing development of hospitals and hospital facilities, recognizing the possibility and the danger of overproduction in this as in other matters. In the meantime existing hospitals should be adequately supported, and we can see no objection to the proposition which is set forth in *Charities* of securing, if possible, an endowment fund for this purpose.

ADULTERATION AND SUBSTITUTION.

IN an official report to the State Board of Pharmacy, made by Dr. George C. Dickman of the New York College of Pharmacy, who is chairman of the board's Committee on Adulteration and Substitution, it is stated that examinations during the past year show that one out of every three druggists in New York City and its vicinity is guilty of dispensing medicines below the official standard. Inspectors, under Dr. Dickman's orders, went from shop to shop buying samples of such staple preparations as tincture of iodine, spirit of camphor and soap liniment. The results tabulated are as follows: Samples tested, 871; up to standard, 561; below standard, 310; per cent, 35.5. No attempt was made to pick out suspected druggists, the samples being purchased at random. Tincture of iodine was found in which not one-quarter of the prescribed quantity of iodine was dissolved. The use of wood alcohol was found to prevail to a large extent in the preparation of certain tinctures. Of 489 samples of tincture of iodine, spirit of camphor and soap liniment, wood alcohol was substituted in 94. During the first half of the year this adulteration was found in 23% of the samples tested, but in the last six months, during which it is stated the drug-trade journals reported from time to time that samples were being collected, the percentage fell to 16%. The State Board divides the state into three districts, of which the Greater New York district includes Westchester County and Long Island. In the two other districts the board's inspectors visited only druggists under suspicion, and in the middle district, which includes the cities of Albany, Syracuse and Rochester, all but ten out of ninety-eight samples collected were bad. In the western district, in which Buffalo is the only large city, but seven samples were tested, but they were all bad. In the New York district more than $20,000 in fines was collected without resort to the courts, the method being to inform the dishonest druggist that he had been detected and that his fine is so much; whereupon he promptly sends in a cheque for the required amount.

The United States Supreme Court has also rendered a decision sustaining the New York statute relating to the adulteration of food products. The case was that of a firm of New York importers *vs.* a merchant who made a contract to purchase coffee of a prescribed grade at a specified price. When the coffee arrived in New York it was discovered to have been colored. The merchant raised the point that the coloring process was equivalent to adulteration, and the New York courts sustained the contention, and relieved him from the requirements of the contract. The attack on the state law was made on the ground that it was an assumption of powers belonging to the United States as governing inter-state commerce. The Supreme Court held that the adulteration of the coffee was an act which came clearly within the police powers of the state as a matter of public welfare within the state. No matter where the adulteration was made, when the resulting product was brought into the state, it was subject to the laws of the state, precisely as if the adulteration had been an act committed within the borders of the state. To hold any other position in a matter relating to the health of the people of the state would be to hold that the state had no power to protect itself against all manner of assaults on public health and welfare.

MEDICAL NOTES.

PENNSYLVANIA SOCIETY FOR THE PREVENTION OF TUBERCULOSIS. — The annual report of the Pennsylvania Society for the Prevention of Tuberculosis shows the same sort of activity in combating the disease there as in other states. Six tracts are published in this pamphlet on the general subjects of how to avoid contracting tuberculosis; on how the transmission of the disease may be avoided; how hotel keepers may aid in preventing the spread of the disease; how storekeepers and manufacturers can assist to prevent the spread of the disease; and finally the registration of tuberculosis. These tracts are published by the society for gratuitous distribution.

INSANITY AMONG INDIANS. — It is reported from the National Hospital for Insane Indians in South Dakota that the institution now has thirty-four patients, and that it will soon be filled at the present rate of increase. Mental disorder is increasing among reservation Indians, supposedly due to the semi-civilized life which is being forced upon them.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Jan. 20, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 81, scarlatina 44, typhoid fever 8, measles 146, smallpox 0.

MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Jan. 16, was 236, against 202 the corresponding week last year, showing an increase of 34 and making the death rate for the week 20.39. Of this number 114 were males and 122 were females, 228 were white and 8 colored, 146 were born in the United States, 87 in foreign countries and 3 unknown, 55 were of American parentage, 147 of foreign parentage and 34 unknown.

The number of children who died under one year was 44, against 31 in 1903; the number under five years 76, against 50 in 1903. The number of persons who died over sixty years of age was 44. The deaths in public institutions were 63. There were 13 deaths from Bright's disease, as against 8 during the corresponding week of 1903. There were 11 deaths from cancer. In the same week of 1903 there were but 5.

MEETING OF MASSACHUSETTS NURSES. — At a recent meeting of the newly organized Massachusetts State Nurses Association, held in Boston, a large number of nurses were in attendance. The membership in the Association is now about 300, and it is confidently expected that it will fulfill the function for which it was organized.

THE BOSTON DISPENSARY. — At the quarterly meeting of the Boston Dispensary certain statistics of interest were presented. The work of the Dispensary during the quarter is represented by the treatment of 6,936 patients at the Dispensary and 2,282 visits to new and old patients. Upwards of 6,000 visits were made in the various districts, and the total number of patients treated by the institution numbered over 10,000. Attention was again drawn to the necessity for more room in order properly to carry on the work of the Dispensary. Since the last report a new district has been established in Charlestown.

MASSACHUSETTS HOSPITAL FOR DIPSOMANIACS AND INEBRIATES. — The twelfth annual report of the trustees of this institution shows that the policy introduced the previous year of selecting cases more carefully for treatment has led to a certain diminution in numbers. The appearance of smallpox, which, however, gained no headway, also conduced to this result. Certain improvements have been made during the year, and further means have been taken for preventing escape. The largest number of patients under treatment during the year was 182, the smallest 105, a very considerable decrease over the preceding year. The superintendent in his report is strongly convinced of the benefit which has resulted in a very large percentage of the cases treated. Of all who have received the full course of treatment, 42% during the ten years of the existence of the hospital have been either cured or improved.

MEDICAL USES OF RADIUM. — In the course of an address on Jan. 13, before the Technology Club, Boston, on the medical uses of radium, Dr. William J. Morton made the suggestion that the efficacy of certain natural mineral waters may possibly be due to the presence in them of minute quantities of radium or its emanations. It seemed probable, he said, that these spring waters contain something that till now has escaped the tests of the analyst, and the known fact that some of the potent waters have radioactivity of one kind or another would seem to point to the presence of radium or the related substances.

NEW YORK.

PNEUMONIA AND THE DEATH RATE. — During the week ending Jan. 9 there were 364 deaths reported from pneumonia (including cases of broncho-pneumonia), an increase of 143 as compared with the corresponding week of last year, and the mortality in the city from all causes represented an annual death rate of 22.23, as against 18.45 in the corresponding week of 1903.

A CENTENARIAN. — Mrs. Susan Jane Weeks died recently in the Williamsburgh district of Brooklyn at the age of one hundred and two years. She was born in Babylon, Suffolk County, N. Y., and was a descendant of an old Dutch family which settled on the east end of Long Island in the early part of the seventeenth century.

HERTER LECTURESHIP. — In the lectureship established at the University and Bellevue Hospital Medical College by Dr. Christian A. Herter, the first series of twelve lectures has just been delivered by Dr. W. D. Halliburton, Professor of Physiology at King's College, London, and Croonian Lecturer before the Royal College of Physicians in 1902. The lectures, which were given daily at the Carnegie Laboratory, were devoted to the bio-chemistry of muscle and nerve.

CONSULTING SANITARIAN TO BOARD OF HEALTH. — Ex-Commissioner Ernest J. Lederle has been appointed consulting sanitarian to the Board of Health, and in this capacity will also sit as a member of the Advisory Board of the Department, which has hitherto been composed entirely of physicians. Prof. Charles F. Chandler, another ex-president of the department, has likewise been appointed a member of the Advisory Board.

Miscellany.

THE DEVIATE.

THE following verses, which have a bearing on the general subject of "Degeneracy and Deviation," were read by Mr. William A. Hovey at a meeting of the Boston Society of Psychiatry and Neurology, in connection with the paper by Dr. George L. Walton on this subject, published in this issue of the JOURNAL:

THIS deviation is a thing
Heredity alone can bring,
It sort of means you went astray
Before you saw the light of day.
It doesn't come because you've sought to
Do things that you hadn't ought to.
It don't arise from frequent "wets,"
Nor even smoking cigarettes.
It comes because you're built that way
And when it comes, it comes to stay.

It isn't nice, at any rate
To call your friend "degenerate"
Because his hands are large or small,
Because in height he's short or tall,
Because his eyes, one brown, one blue,
To normal standards are not true.
And if he be much bigger, stronger,
With every chance of living longer,
Than any man you've seen or known,
A man with powers all his own,
You may call him a "deviate"
But surely not "degenerate."

I know a man of strenuous mold
Of stalwart build, of aspect bold,
Of reddish hair, of mild blue eye
And with a very potent thigh—
A man who's built for boxing, rowing,
Who's ever to the river going
To find a vent for his great store
Of vital force. He has galore
Of brawn and muscle, blood and bone,
I think he weighs some fourteen stone.
His blood goes racing through his veins
Like mile-a-minute railroad trains,
And keeps on building brain and muscles,
Because its full of red corpuscles.
Now if you'd keep away from harm
Fight very shy of that right arm
And never, never seek to know
The fearsome twist of that elbow.
This man, to speak in parlance formal,
Is most distinctly supernormal
But, to his face, I think you'd hate
To call him a "degenerate."
You'd safely say an "aberrate,"
An "abnorm" or a "variate,"
But Walton's word is "deviate."

Another man I have in mind,
He's of a very different kind,
He's neither very short nor tall,
But he is one who "knows it all."
His brain is of the average size,
He doesn't differ as to eyes,
From other men who chin and chatter,
The kind whose talk is mainly clatter.
He went through college, that of course;
And yet, if you should own a horse
E'en half as stupid as is he
You'd shoot him, sure as sure can be,
For none of us can really need
A critter that can't earn his feed.
He'll tell you all his blood is blue
And I'm inclined to think it's true,
For of good blood it's often said
"Damn the color, so it's red."
He never smokes, he rarely drinks,
He's one of those who thinks he thinks;
In fact he's just a deviate.
'Twas written in the book of fate
There was a twist in his creation
And he's a case of deviation.
And so you see it's come to pass,
That he's a solemn, pompous ass.
He's very proud, he's fat and sleek
And thinks God kissed him on the cheek
He can't get out this spell from under,
If you can cure him, you're a wonder.

Another man I have in mind
A doctor of the country kind.
He practices among the lowly
And criminals, and men unholy,
Quite frequently his talk reverts
To curious cranks and queer perverts.
And, nothing strange, he holds the view,
And some of you may hold it too,
That too much smoking, too much drinking
And toxic drugs of which I'm thinking
Will make men take to dreadful things
Whose very names would make you cringe.
No doubt he's right. But these he'll rate
As men who are degenerate.
In other words, he'll say to you,
And this is quite a common view,
That when you say "degeneration"
You mean a moral degradation.
Now that's not what you mean to say
And yet, there is the deuce to pay

If you call one "degenerate"
Who really is a "deviate."

So now I think you'd better plan
To just construct an average man.
And if one differ, foot to crown
From these fast lines that you lay down,
Whether for better or for worse,
The small details I can't rehearse,
Just give a try to Walton's plan
And say that he's a devious man,
Who may not be "degenerate"
But all the same, a "deviate."

TREATMENT OF EPILEPSY BY ROENTGEN RAYS.

AT the annual meeting of the Medical Association of the Greater City of New York, Dr. J. H. Branth read a paper in which he reported encouraging results in the treatment of epilepsy by means of the Roentgen rays. He stated that in many instances the occurrence of the seizures was believed to depend upon the instability of the cellular brain elements, or an abnormal metabolism, and as it was accepted by many authorities that the x-ray stimulates the vital activity of protoplasm, it was upon this theory that the treatment was adopted. Naturally, he said, all cases of epilepsy are not amenable to it, as, for instance, those in which decided degenerative processes in the brain have set in. By radiographs taken by himself Dr. Branth demonstrated that part of the x-rays unquestionably pass through the skull, and he regarded it as fair to assume that more than twice the quantity pass through the middle of the brain, as in light the power diminishes by the square of the distance. In his cases three treatments per week are given, beginning with five minutes' exposure at fifteen inches' distance, and gradually extending this to ten minutes' exposure and ten inches' distance. A hard, or high vacuum tube is employed, and a different part of the skull is exposed at each sitting. In both *grand* and *petite mal* it has been observed that the seizures became lighter and of shorter duration, that the intervals became longer, and that if an attack occurred, it was followed by less prostration. In patients with six to eight seizures a day, after the treatment had been taken for a few weeks, intervals of two and three weeks were noted. The hair may drop out in areas, but it is certain to return in a stronger growth than before. In a few instances, where the patients appeared to have acquired a bromide drug habit, the best results were obtained by continuing small doses of bromides, in addition to the x-ray treatment. With few exceptions the patients gain in weight at an impressing rate. A remarkably successful case was presented, that of a lad fourteen years of age who had not had a single seizure since the treatment was commenced, on Nov. 8, and who had astonished his family and teachers by the extraordinary improvement he had made both mentally and physically.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 9, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,635	481	20.06	25.75	3.48	2.02	.61
Chicago . . .	2,021,086	516	145	17.63	22.09	1.94	3.29	1.35
Philadelphia	1,407,968	—	—	—	—	—	—	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	235	56	22.21	20.08	2.99	1.28	1.28
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	186	—	21.50	19.89	2.69	.53	5.37
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,980	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	80	19	17.50	32.50	—	—	1.25
Boston . . .	617,950	229	75	16.59	22.71	3.49	.87	.87
Worcester . .	136,925	38	13	7.89	23.68	—	2.63	—
Fall River . .	119,349	37	9	32.42	27.02	2.70	5.40	5.40
Lowell . . .	104,402	34	9	11.76	11.76	5.58	—	—
Cambridge .	100,998	34	9	23.65	11.76	8.82	—	—
Lynn	98,575	22	3	8.70	—	8.70	—	—
Lawrence . .	72,348	39	17	10.25	25.64	2.56	2.56	—
Springfield .	72,020	22	5	18.18	4.54	4.54	—	—
Somerville .	70,413	24	5	29.16	25.00	4.16	—	—
New Bedford	68,863	44	13	4.54	11.36	—	—	—
Holyoke . . .	50,538	18	7	22.22	33.33	—	—	—
Brockton . .	46,601	9	3	22.22	—	—	—	—
Newton . . .	39,310	11	2	36.36	36.36	—	—	18.18
Haverhill . .	39,061	14	1	21.42	14.28	—	—	—
Malden . . .	37,205	6	—	16.67	—	—	—	—
Salem	37,188	17	5	5.88	—	5.88	—	—
Chelsea . . .	36,499	12	2	16.67	—	—	—	—
Fitchburg . .	36,335	14	6	7.14	14.28	—	—	—
Taunton . . .	34,577	13	2	23.10	7.70	—	—	—
Everett . . .	30,209	9	2	22.22	—	—	—	—
North Adams	29,201	5	—	80.00	20.00	20.00	—	20.00
Quincy . . .	26,798	5	2	—	20.00	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	3	3	—	—	—	—	—
Brookline . .	23,576	6	0	16.67	16.67	—	—	16.67
Pittsfield . .	22,870	6	3	33.33	—	16.67	—	—
Medford . .	21,956	3	1	—	33.33	—	—	—
Chicopee . .	21,692	3	2	—	33.33	—	—	—
Northampton	20,314	7	2	—	28.60	—	—	—
Beverly . . .	15,807	3	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	2	—	—	—	—	—
Adams . . .	14,745	1	0	100.00	—	—	—	100.00
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	3	—	66.67	33.33	—	—	—
Newburyport	14,478	6	1	—	—	—	—	—
Woburn . . .	14,315	2	0	—	—	—	—	—
Melrose . . .	13,819	5	1	—	40.00	—	—	—
Westfield . .	13,809	4	—	—	50.00	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	8	3	25.00	12.50	12.50	—	—
Revere . . .	13,609	—	—	—	—	—	—	—
Framingham	13,974	3	1	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	5	—	20.00	20.00	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	3	—	—	—	—	—	—
Weymouth .	11,350	4	1	25.00	25.00	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,387; under five years of age, 911; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 644, acute lung diseases 776, consumption 320, scarlet fever 49, whooping cough 4, cerebrospinal meningitis 12, smallpox 4, erysipelas 13, puerperal fever 17, measles 20, typhoid fever 40, diarrheal diseases 60, diphtheria and croup 102.

From whooping cough, New York, Baltimore, Pittsburg and Boston, 1 each. From smallpox, Pittsburg 4. From cerebrospinal meningitis, New York 5, Baltimore, Boston, Cambridge, Somerville, Brockton, Marlborough and Gardner, 1 each. From erysipelas, New York 6, Chicago 4, Pittsburg, Boston and Worcester, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Dec. 26, the death-rate was 15.4. Deaths reported, 4,464; acute diseases of the respiratory organs (London) 139, whooping cough 111, diphtheria 38, measles 130, smallpox 5, scarlet fever 25.

The death-rate ranged from 7.1 in Barrow-in-Farnace to 29.4 in Wigan; London 13.6, West Ham 11.7, Brighton 12.1, Southampton 10.9, Plymouth 18.2, Bristol 16.2, Birmingham 16.9, Leicester 12.8, Nottingham 12.5, Liverpool 20.7, Bolton 15.9, Manchester 19.6, Salford 15.2, Bradford 21.5, Leeds 20.3, Hull 14.6, Cardiff 12.4, Rhondda 16.6, Kings Norton 10.6, Preston 24.6.

METEOROLOGICAL RECORD.

For the week ending Jan. 9, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 3	29.96	3	7	-1	94	64	79	N	W	24	8	N.	C.	.30
M.. 4	30.36	0	3	-3	63	73	68	N W	W	20	13	C.	C.	0
T.. 5	30.52	6	16	-3	79	58	68	W	N W	9	6	C.	C.	0
W.. 6	30.34	16	28	3	62	54	58	S W	S W	12	12	C.	O.	0
T.. 7	29.98	26	32	21	78	65	72	S W	N E	8	4	O.	C.	T.
F.. 8	29.73	25	33	17	85	100	92	N	N	4	9	O.	N.	.13
S.. 9	29.34	30	33	27	100	84	92	N	N W	10	15	N.	O.	.68
☞	30.03		22	9			76							1.11

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 16, 1904.

CRANDALL, R. P., surgeon. Detached from the Naval Station, Guam, L. I., and ordered to the Wisconsin.

MURPHY, J. A., P. A. surgeon. Commissioned a P. A. surgeon from March 3, 1903.

HEINER, R. G., and STOOPS, R. E., doctors. Appointed assistant surgeons with the rank of lieutenant (junior grade), from December 26, 1903.

SOCIETY NOTICES.

ANNUAL MEETING EASTERN SECTION AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. — The Eastern Section of the American Laryngological, Rhinological and Otological Society will hold its annual meeting at the Young Men's Christian Association Building, Corner North Main and Pine Streets, Fall River, Mass., Saturday, Jan. 30, 1904, at 2.30 P.M. The medical profession is cordially invited to attend the meeting.

WENDELL C. PHILLIPS, M.D., Secretary.

MEDICAL SOCIETY OF THE STATE OF NEW YORK. — The 98th Annual Meeting of the Society will be held January 26, 27 and 28, 1904, in the City Hall, Albany, commencing at 9.30 A. M. on the 26th, and ending at 1 P. M. on the 28th.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR SURGERY. — A meeting of this section will be held at the Medical Library, on Wednesday evening, Feb. 3, at 8.15 o'clock. The subject for discussion will be: "The Technique of Gastroenterostomy." The first half of the meeting will be taken up by the presentation of eight five-minute papers or demonstrations of special details of this operation. Members who cannot attend the meeting are requested to send to the Secretary brief reports of any cases (particularly the unsuccessful ones), illustrating special points of interest in relation to this subject.

E. A. CODMAN,
Secretary.

104 Mt. Vernon Street.

BOOKS AND PAMPHLETS RECEIVED.

Portfolio of Dermochromes. By Professor Jacobi. English Adaptation of Text by J. J. Pringle, M.B., F.R.C.P. New York: Rebman Co. 1903.

The Blues (Splanchnic Neurasthenia), Causes and Cure. By Albert Abrams, A.M., M.D. (Heidelberg), F.R.M.S. Illustrated. New York: E. B. Treat & Co. 1904.

The Self-Cure of Consumption without Medicine, with a Chapter on the Prevention of Consumption and Other Diseases. By Chas. H. Stanley Davis, M.D., Ph.D. New York: E. B. Treat & Co. 1904.

A Text-Book of Legal Medicine and Toxicology. Edited by Frederick Peterson, M.D., and Walter S. Haines, M.D. In two volumes. Vol. II. Illustrated. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

Nineteenth Report of the State Board of Health of Wisconsin for the year ending September 30, 1902.

The Demonstration of Nucleated Red Blood Corpuscles in Animal Spleens. By Edward T. Williams, M.D., of Boston. Reprint. 1903.

Clinical Notes on Dysemia. By Louis J. Gravel, M.D., of Montreal. Reprint. 1903.

The Symptomatology and Diagnosis of the Pancreas. By Reginald H. Fitz, M.D., of Boston. Reprint. 1903.

The Dispensary Problems in Philadelphia. By F. B. Kirkbridge. Philadelphia. 1903.

Chronic Cyanotic Polycythemia, with Notes upon Two Cases. By J. N. Hall, M.D., of Denver, Col. Reprint. 1903.

Some Problems in the Major Surgery of the Kidneys; with a Report of Cases. By Joseph A. Blake, M.D., of New York. Reprint. 1903.

Sleeping Sickness in the Light of Recent Knowledge. By Louis W. Sambon, M.D. (Naples), of London. Reprint. 1903.

Second Progress Report of the Campaign against Mosquitoes in Sierra Leone. By M. Logan Taylor, M.B., of Liverpool, Eng. 1902.

Report on the Sanitary Conditions of Cape Coast Town. By M. Logan Taylor, M.B., of Liverpool, Eng. 1902.

The Fermentation Theory of Infection and Immunity. By J. W. McLaughlin, M.D., of Galveston, Texas. Reprint. 1903.

An Atlas of Human Anatomy for Students and Physicians. By Carl Toldt, M.D., assisted by Professor Alois Dalla Rosa, M.D. Translated from the Third German Edition and adapted to English and American and International Terminology, by M. Eden Paul, M.D. Brux., M.R.C.S., L.R.C.P. Second Section. Illustrated. New York: Rebman Company, 1903.

Transactions of the American Gynecological Society. Volume 28. For the year 1903. Philadelphia: Wm. J. Dornan.

Anatomy Applied to Medicine and Surgery. By D. E. Mundell, B.A., M.D. Kingston, Ont., 1903.

Transactions of the National Association of the United States Pension Examining Surgeons. Second Annual Meeting, Washington, D. C., May 13 and 14, 1903. Including an Account of First Meeting, at Saratoga Springs, June 9, 1902. Vol. I. Rochester, N. Y., 1903.

Bacteria, Yeasts, and Molds in the Home. By H. W. Conn, Ph.D. Illustrated. Boston and London: Ginn & Co., 1903.

Observations on the Iodine Reaction in Children. By Charles Hunter Dunn, M.D., of Boston. Reprint. 1903.

Dispensaries for Tuberculosis, with a Description of the Tuberculosis Department of the Boston Dispensary. By Edward O. Otis, M.D., of Boston. Reprint. 1903.

Thirty-third Annual Report of the Central State Hospital of Virginia. Richmond, 1903.

A Table of Ocular Extrinsic Paralysis. By Horace M. Starkey, M.D., of Chicago. Reprint. 1903.

The Use of a Mydriatic after the Age of Forty-five. By Horace M. Starkey, M.D., of Chicago. Reprint. 1903.

Rules Governing the Transportation of the Dead. Conference of State and Provincial Boards of Health.

The Significance of Bacteriological Methods in Sanitary Water Analysis. By C. E. A. Winslow and C. P. Nibecker of Boston. Reprint. 1903.

The Case for Vaccination. By C. E. A. Winslow of Boston. Reprint. 1903.

Mittheilungen aus der Medicinischen Facultät der Kaiserlich-Japanischen Universität zu Tokio. Band VI, No. 1. Tokio, 1903.

Adeno-Carcinoma of the Liver in Childhood. By Stephen Smith Burt, A.M., M.D., of New York. Reprint 1903.

Medical and Surgical Reports of the Boston City Hospital. Fourteenth Series. Edited by Herbert L. Burrell, M.D., W. T. Councilman, M.D., and Charles F. Withington, M.D. 1903.

Mt. Sinai Hospital Reports. Vol. III. For 1901 and 1902. Edited for the Medical Board by N. E. Brill, A.M., M.D.

Transactions of the American Surgical Association. Vol. XXI. Edited by Richard H. Harte, M.D. 1903.

The Principles of "Open-Air" Treatment of Phthisis and of Sanatorium Construction. By Arthur Ransome, M.D., M.A. (Cantab.), F.R.C.P., F.R.S. Illustrated. London: Smith, Elder & Co. 1903.

Essentials of Pelvic Diagnosis with Illustrative Cases. By E. Stanmore Bishop, F.R.C.S. (Eng.). And an Appendix on Examination of Blood, etc. By Chas. H. Melland, M.D. (Lond.), M.R.C.P. Illustrated. New York: William Wood & Co. 1903.

"Today's Boy is To-morrow's Man." The Boy: How to Help Him Succeed. A Symposium of Successful Experience. By Nathaniel C. Fowler, Jr., assisted by Three Hundred and Nineteen American Men of Marked Accomplishment. Oakwood Publishing Co., Boston.

Original Articles.

EXPERIMENTS WITH THE McGRAW ELASTIC LIGATURE.*

BY FRED T. MURPHY, M.D., BOSTON.

From the Surgical Laboratory of the Harvard Medical School.

Gastro-enterostomy and lateral anastomosis have come to occupy so conspicuous a position in the field of abdominal surgery that any procedure which will decrease the operative risk is of the greatest importance. Mechanical devices almost without number have been introduced to assist in perfecting the technic of the operation, but one by one they have been discarded. Operators generally have gone back to the simple suture. The suture possesses the advantage of universal adaptation to all conditions and in the hand of the expert the difficulties attendant upon its use — time necessary for application, failure to obtain solid joints and the danger of soiling the peritoneum at the opening of the bowel — are becoming less with the improved technic. The general statistics, however, of the operation of gastro-enterostomy and lateral anastomosis are not satisfactory. Any departure from the routine methods must, in order to gain advocates, be supported either by a large clinical success or by strong experimental evidence. Reports of clinical cases will exert their influence for or against any procedure.

This series of twenty operations on animals, in which the elastic ligature was used, is reported and the literature of experimental work along the same line is reviewed in the hope of adding to the data from that standpoint.

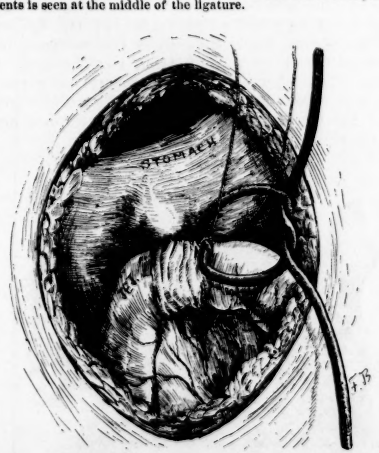
Gaston [1] as early as 1884 used the elastic ligature in forming an anastomosis between the gall bladder and the duodenum. He included within a single stitch of elastic cord or silk various lengths of the wall of the gall bladder and gut, and supported this stitch with a circular row of Lembert sutures. His experiments were employed solely with the question of an anastomosis between the gall bladder and gut. He demonstrated the possibility of effecting an opening between hollow viscera by means of pressure necrosis, but in connection with this gastro-intestinal work the experiments are interesting only on account of the question of priority of ideas and to emphasize the fact that in a thin-walled viscus, such as the distended gall bladder, the method is of questionable utility, because under pressure there may be an escape of the contents at the application of the ligature or the ligature may cut through too soon.

In 1888 Bardenheuer [2] published an inaugural dissertation in which he reported successful results in gastro-enterostomy on animals by the use of an elastic ligature. As quoted by Terrier and Baudouin [3] the elastic ligature used was 1 to 1.5 mm. in diameter and the bowel was taken up in small separate loops until the required amount, about 1 cm. for a gastro-enterostomy, had been included. The opening was complete at the end of two days. His work apparently at that time did not excite sufficient interest to be either confirmed or refuted.

McGraw [4] presented before the American Medical Association in 1891 the results of experiments on twenty-four dogs in which a gastro-enterostomy had been done by means of an elastic ligature. A second series was for relief of fecal fistulæ by lateral intestinal anastomosis, and a third was to make an opening of the gall



The stomach and jejunum have been approximated with a continuous suture. The elastic ligature has been passed through the gut walls. The "knot" introduced in the second series of experiments is seen at the middle of the ligature.



The elastic ligature has been drawn tight and the first part of the square knot is held by means of a silk ligature. The wall of the stomach included within the loop of the ligature is thickened rather than wrinkled, while the jejunum is markedly wrinkled. The "knot" in the middle of the ligature has been buried by the folding over of the serous surfaces.

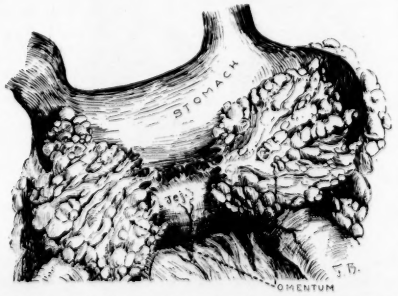
*I wish to express my thanks to Messrs. J. B. Hartwell, L. C. Kingman and W. G. Lee, members of the graduating class of the Harvard Medical School, for their assistance in this work.

bladder into the duodenum. He selected a round rubber cord 2 mm. in diameter, after experimenting with a flat band and a larger cord. The salient points of the technic are that the ligature must be on the stretch when drawn



Interrupted stitches have been placed anteriorly, and at the ends of the loop, completely burying the elastic ligature.

through the gut, the whole extent of gut to be cut away is to be included within a single loop; the ligature is to be prevented from slipping when tied by tying a silk stitch across the two halves of the square knot; the serous coats are to be approximated by a supporting circular row of Lembert stitches. Detailed data are not given, but the results showed to McGraw's satisfaction that the changes which followed the application of the elastic ligature were as follows:



Three days after operation, the omentum has become wedged in at either end of the line of suture, and adhesions have formed between the stomach and jejunum.

At the end of twenty-four hours the corrugations caused by the wrinkling of the gut wall began to disappear, but there was no evidence of a cutting through of the ligature. The folds due to the wrinkling of the gut wall were entirely gone at the end of forty-eight hours and there was a slight cutting through of the tissues by the ligature. A small patent space on either side of the ligature existed at the end of the third day. At the end of the fourth day there was a complete cut-out of the ligature, the opening being equal to the extent of the gut included by the loop. Exceptionally the cut-out was found complete at the end of three days, or the ligature was found at the end of five days still surrounding a bridge of tissue. With his experimental animals no difficulty was experienced from the formation of adhesions across the anastomosis. He assumed that the mucous membrane crowded together as the ligature cut through, thus making a smooth surface with a complete covering of mucous membrane. While not the first to employ the elastic ligature as the means of anastomosis between the stomach and intestine McGraw without doubt overcame the technical errors of Bardenheuer and made the method practical.

Cordier [5] in the same year reported experiments on fifteen dogs which confirmed completely the results of McGraw. No detailed data are given of the work.

Just as McGraw had done his work independently of that of Gaston and Bardenheuer, so Podrez,[6] in 1898, published a so-called new method of intestinal anastomosis. He used two silk ligatures applied in the form of a Greek cross and from experiments on nine animals concluded that the method was satisfactory and that the cut-out occurred in two to four days. Generally the experiments incited by this paper failed to confirm Podrez's results.

Modlinski [7] in the following year modified the method of Podrez by substituting an elastic ligature for the silk and obtained satisfactory results in a series of nine dogs. He estimated the time necessary for a cut-out to be two days.

Cutts, [8] in 1901, published results of animal experiments with the elastic ligature. He used no supporting sutures, yet had no peritoneal infection and obtained free openings. The time of the cut-out and other details of the procedure are not given.

The two recent publications of experiments are by Kakels and Maury. Kakels [9] operated upon ten dogs with the following results. One died within the first twenty-four hours. The peritoneal cavity was clean. One killed the third day, one the fourth day, one the fifth day and one the seventh showed a partial cut-out of the ligature. Two killed on the fifth day and one on the eighth showed a complete cut-out. Two dogs were living at the time his report was made. There was no case of peritonitis, and no newly made adhesions across the lumen were noted. The opening showed no tendency to contraction. He used ligatures of 2, 3 and 4 mm. in diameter and would prefer a larger rather than a smaller cord.

The article by Maury [10] is devoted rather to suggesting a modification of technic than to testing the results of the elastic ligature as



FIG. 1. — Section across the mass of tissue enclosed within the loop of the elastic ligature, 5 days' duration, showing pressure necrosis due to the elastic ligature.



FIG. 2. — Section at right angles to the line of union of the stomach and jejunum, 12 days' duration, showing an area of granulation tissue between the two viscera, with the mucous membrane growing over it from either margin.

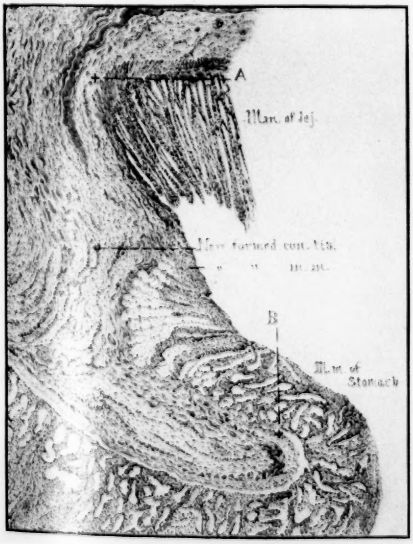


FIG. 3. — Section at right angles to the line of union of the stomach and jejunum, 30 days' duration, showing fairly dense scar tissue completely covered by new formed mucous membrane. A, point at which submucosa of jejunum has been cut through; B, point at which submucosa of stomach has been cut.

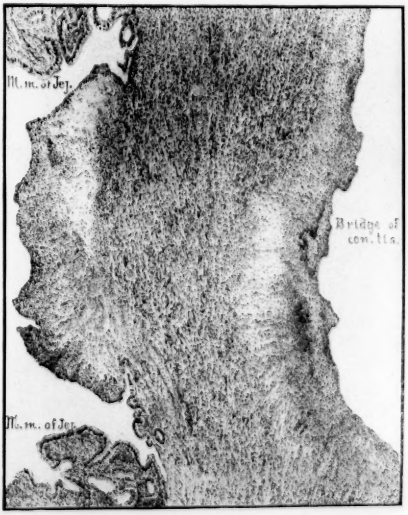
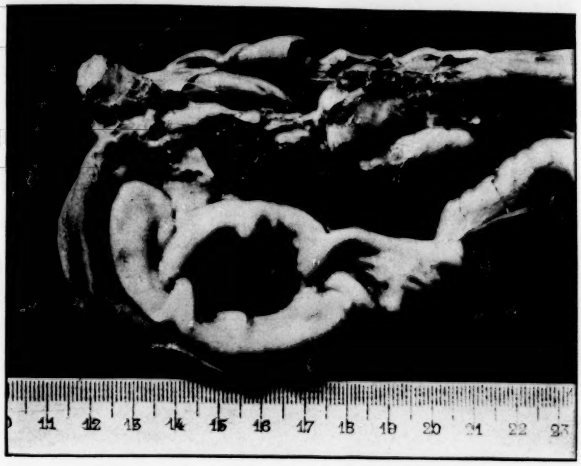
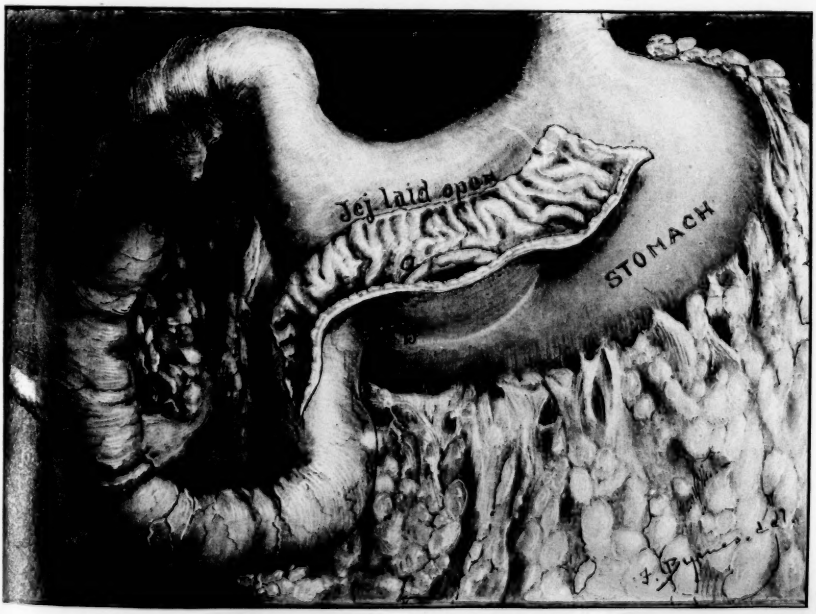


FIG. 4. — Section across an adhesion, 7 days' duration, which had formed between the edges of the jejunum after the elastic ligature had cut out



Photograph to show the actual opening made by means of the elastic ligature between the stomach and jejunum.



Thirty days after operation, the adhesions of the omentum have practically disappeared and the external line of union between the stomach and jejunum shows as a fine line. A, internal line of union; B, external line of union.

applied by McGraw. Maury states that in a series of preliminary experiments two bands of tissue were always found across the opening and this led him to change McGraw's method so that an actual hole would be punched out of the gut wall. Instead of including the tissues within a single loop the ligature was passed back and forth so that a triangular or square area was included. With this modification the 2 mm. elastic cord was used on twenty dogs and one pig. Six of the dogs died — one from intestinal obstruction, two where no stitches had been used from perforation at the site of the ligature, one from a small perforation away from the ligature, and one from a septic stitch-hole three and one-half months after operation. Three dogs and a pig were living and well at the time of his report. No adhesions across the anastomosis were noted in the remaining cases. Maury concludes that with his modification the operation is much improved and it is a satisfactory procedure. No data as to the time of the cut-out are given. Emphasis is placed on the necessity of supporting Lembert stitches with this modification since by the repeated passing of the ligature there may be some contamination of the peritoneum.

On the whole the published experimental work confirms the claims made by McGraw in 1891. To summarize it may be said that it is agreed that the elastic ligature will cut its way out; a firm and smooth union of the opposed serous surfaces is formed; and the operation is performed with the miminum risk. The time of the cut-out and liability to the formation of adhesions across the opening must be determined by further evidence.

Variations in the time of the cut-out may in a measure be attributed to the degree of elasticity possessed by the ligature which depends not only on the original quality but also on the amount of degeneration from age. The personal equation of the operator must also be considered. The individual resistance of the tissue in different cases is not to be overlooked. My own experiments are as follows:

The elastic ligature was used on nineteen cats and one dog, the operations including nineteen gastro-enterostomies and one entero-enterostomy. The general principles of McGraw's technic were observed; that is, the ligature was on the stretch when pulled through the gut, the ligature included in a single loop the entire amount of the gut to be cut away, the ligature was secured by tying a strong silk thread around the two parts of the square knot. Supporting circular rows of Lembert stitches were used in all but one case, a continuous or interrupted one posteriorly and an interrupted one anteriorly and at the ends. The ligature used in all but two cases was a rubber cord 3 mm. in diameter. A smaller size, 2 mm., did not seem to constrict the large amount of tissue satisfactorily and a 4 mm. in addition to being too bulky did not cut through any more rapidly than the 3 mm. cord. A common darning-needle with a long but narrow eye served as a carrier for the ligature. Unless otherwise stated in the tabulation the operation done was a gastro-enterostomy and the length of the gut wall included in the loop was 5 cm. The experiments may be divided into two main groups: first, one in which the elastic loop contains but one knot; and second, one in which an extra knot was tied in the cord so that there was a knot of rubber at either end of the loop.

The following table includes the operations in which the loop contained a single knot:

Time Elapsed After Applying Ligature.	Operation.	Postmortem Findings.
1 day	Pylorectomy with lateral anastomosis between closed stomach and jejunum. 5 cm.	No cutting through of ligature. Fine adhesions formed between the opposing serous coats.
4 days	Gastro-enterostomy. 5 cm.	4 mm. cord. Mucous membrane of jejunum cut through. No opening into stomach.
4 days	Gastro-enterostomy. 5 cm.	Knot had cut through into jejunum. Opening into stomach admitted probe.
5 days	Gastro-enterostomy. 5 cm.	Knot had cut through into jejunum. Artery forceps can be passed into the stomach.
5 days	Lateral anastomosis between two loops of jejunum. 5 cm.	Ligature still around a bridge of tissue, but an opening 2 cm. in length was formed.
6 days	Gastro-enterostomy. 5 cm.	Jejunum entirely cut through. Stomach wall completely cut through for only 5 mm. at the knotted end of the ligature.
9 days	Gastro-enterostomy. 2.5 cm.	Ligature still around the bridge of tissue. Complete cut-out in the stomach cavity of 1 cm.
9 days	Gastro-enterostomy. 4 cm. in loop	Ligature still around the bridge of tissue. Complete cut-out in the stomach of 2.5 cm. Mucous membrane of both jejunum and stomach cut for 3.5 cm.
12 days	Gastro-enterostomy. 5 cm.	Full cut-out of 5 cm.
13 days	Gastro-enterostomy. 5 cm.	Ligature all but cut out and hanging by small pedicle. Bridge of tissue partially obstructed opening so that free passage was only 1.5 cm. in length.
30 days	Gastro-enterostomy. 5 cm.	Full cut-out of ligature. Opening 4 cm. in length.
30 days	Gastro-enterostomy. 5 cm.	4 mm. cord. Cut-out 3.5 cm. in length.
30 days	Gastro-enterostomy. 5 cm.	(No supporting stitches) Ligature had cut-out. Opening contracted to 2 cm. in length.
In the following two cases an attempt was made to cut away a part of the serous and muscular layers of the wall of the stomach and jejunum before applying the ligature, in order to reduce the amount of tissue to be cut through.		
3 days	Gastro-enterostomy. 5 cm.	No apparent cutting through of the ligature.
9 days	Gastro-enterostomy. 5 cm.	Bridge of tissue surrounded by the ligature. Free opening 2.5 cm. in length.

This series demonstrated that the stomach of the cat was very resistant. The jejunum was cut away by the fifth day, but not until about the twelfth had the ligature completely cut out the stomach wall. The stomach and intestinal walls of the cat at once attract attention by their bulk and firmness and to this resistance the delayed cut-out was attributed rather than to any alteration in the prescribed technic. The rubber cord, 4 mm. in diameter, was no more effective than the 3 mm., although both were new and of the best quality of rubber. Removing the outer coats of the bowel did not seem to aid materially in the rapidity of the cut-out and complicated the operation.

In all cases it was noticed that the greatest cut-out was at the end of the loop where the ligature was knotted. Acting on this hint the technic was modified. A square knot was tied in the middle of the ligature and a needle threaded on either end. In this way a knot of rubber was formed at either end of the anastomosis.

The tabulation of the results with this change is given below. All these operations were gastroenterostomies and 5 cm. of the gut wall was included within the elastic loop, which contained two knots.

Time Elapsed After Applying Ligature.	Operation.	Postmortem Findings.
3 days	Gastro-enterostomy. 5 cm.	Ligature still around a bridge of tissue. Two openings between stomach and jejunum, the largest of which was 2 cm. in length.
4 days	Gastro-enterostomy. 5 cm.	Jejunum completely cut through, but stomach holding by a thin film of tissue. Free opening of about 1 cm.
5 days	Gastro-enterostomy. 5 cm.	Complete cut-out of 5 cm.
5 days	Gastro-enterostomy. 5 cm.	(Dog) Complete cut-out 5 cm. in length. Ligature hanging by shred.
7 days	Gastro-enterostomy. 5 cm.	Ligature is completely cut through. Small bridge of tissue across the opening.

With the knotted ligature even with the resistant tissues of the cat the anastomosis was completed by the fifth day and at the third or possibly before an opening of considerable size existed.

Eighteen of the cats were killed with chloroform and two died as the result of the operation, the case of pylorectomy never rallying from the shock and a gastro-enterostomy dying on the ninth day from a septic wound of the belly wall. In every case, except the one with the sloughing abdominal wall, the general peritoneal cavity was clean. Two cases showed bands of tissue extending across the opening after the ligature had completely cut out. The first was evidently caused by an error in technic in not including all of the mucous membrane within the loop; that is, in passing the needle into the bowel a fold of the membrane was transfixed. This is so interpreted because there was no evidence that the mucous membrane had been cut through. In the second case the bridge showed under the microscope unmistakable granulation tissue on its center and must be considered as an adhesion between the cut surface of the gut after the ligature had cut its way out. The serous surfaces uniformly after the first two days had practically lost all of the wrinkles produced by tying the ligature which were noted at the end of the operation. The stomach wall included by the ligature thickens by contraction rather than wrinkles, hence there is no reason why it should not be smooth when the anastomosis is completed. The duodenum on the other hand is markedly wrinkled and I cannot explain the reason of the early disappearance of the folds. Adhesions of the omentum about the site of the suture were present in the cases which were killed in the first few days, but grew less and less as time went on, until at the end of a month they were not marked.

The time of the cut-out varied between rather wide limits — five to twelve days. The delay may be attributed to the marked resistance of the tissues of the cat. With a knotted ligature, however, the time was reduced to within the limits of other observers, four to five days.

Figure No. 1 illustrates the process of the cut-out by pressure necrosis. The steps as seen microscopically are, first, necrosis and rupture of the muscle fibres; second, an invasion of leucocytes, and, finally, solution of the tissue.

The union is effected between the serous surfaces by the slight inflammatory process incident to the injury and pressure necrosis.

Other writers have assumed that no raw surface was left after the cutting through of the ligature, but Figure 2 shows an area of granulation tissue between the serous surface over which the mucous membrane is extending from either side. Figure 3 illustrates the end result with the granulation changed to scar tissue and the entire margin of the hole completely covered by mucous membrane.

That adhesions may form between the raw surfaces is shown by Figure 4 which is a section through such a bridge. In the center new formed tissue is plainly evident which can be accounted for in no other way. The danger of this, it seems to me, has been rather overstated by certain observers. While the possibility exists, it has not been found generally to be a probability. There is no reason why in the use of the ordinary intestinal suture the same complication under exceptional conditions might not arise.

In the application of the ligature the simple technic as described by McGraw is, in my opinion, adequate and satisfactory. Any elaboration of technic must reduce the effectiveness, because it reduces the speed, thus adding to the shock, and increases the liability of infection. As to the supporting sutures, a posterior continuous possesses the advantage of quicker application, but anteriorly and at the ends an interrupted stitch would seem to be preferable. For while

on animals it was not demonstrated that a continuous anterior stitch tended to contract the opening, since it is applied after the jejunum has become wrinkled, such is the case on the cadaver. In trying the ligature care should be taken not to include the posterior suture within the loop. Since it was possible to include 5 cm. of the wall of the small intestine of a cat the larger human bowel will permit of the formation of an opening up to any size which may be required to side track the stomach contents.

Conclusions. — These experiments show that a successful anastomosis between the stomach and intestines, or two loops of intestine, is possible by means of the elastic ligature. The method is not applicable when an immediate opening is required.

The time of the cut-out varies, depending upon the character of the ligature, the method of application, and the resistance of the tissues in any case, but the ligature will ultimately cut out.

A knot at either end of the elastic loop increases the rapidity of the cut-out.

The pinching of the gut by the ligature seems to cause no bad symptoms.

The serous surface of the outside of the joint when completed is smooth.

The anastomosis by gross or misroscopical examination shows no evidence why there should be any greater tendency to contraction of the opening than with the ordinary methods of intestinal suture.

The procedure causes a minimum operative risk, both as regards shock and infection.

Adhesions across the opening are a possible, but not a probable, complication.

Extending these conclusions to practical operative work, it is my opinion that in cases in which an immediate opening of the bowel is not imperative, and in which the avoidance of operative shock is an important factor, the elastic ligature may prove to be the operation of choice in gastro-enterostomy and lateral anastomosis.

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DIFFERENTIAL DIAGNOSIS OF RHEUMATISM AND THE ARTHRITES.[1]

BY THOMAS F. HARRINGTON, M.D., LOWELL, MASS.

THERE is, perhaps, no class of affections more commonly met in practice than those included in the title of this paper. Notwithstanding this marked prevalence, the ancient history of its recognition, and the great progress in scientific medicine, the undisputed fact remains that there is no one term in medicine accountable for more ignorance and neglect than "rheumatism." Undefined itself, it has spread its mantle over conditions dissimilar and obscure until it has become well-nigh impossible to separate the true from the spurious. It is the hope of pointing out some of the errors and evil consequences of this classification that prompts me to present the subject at this meeting.

In the first place rheumatism and arthritis are not synonymous terms. The characteristic symptom of rheumatism is an arthritis, yet we have many arthrites which cannot be associated with rheumatism as clinically accepted. Every arthritis should be traced to its probable true cause, and no case should be considered rheumatic unless an undisputed attack of acute rheumatism can be given. Rarely is rheumatism diagnosed other than it is; the danger lies wholly in the opposite direction. As will be shown later, there is probably but one form of rheumatism, namely, acute rheumatism. Any other use of the term leads to confusion, and often to wrong treatment, with disasterous consequences.

It is with the object of avoiding such errors, as well as an endeavor to offer a classification founded upon clinical appearances, re-enforced by etiological and pathological findings, as far as known, that I would suggest the following:

A. Infective arthritis: (1) acute rheumatism; (2) gonorrheal arthritis; (3) purpuric arthritis; (4) pneumococcic arthritis; (5) scarlet fever arthritis; (6) tubercular arthritis; (7) syphilitic arthritis; (8) typhoidal arthritis; (9) influenza arthritis; (10) erysipelas arthritis; (11) spinal meningitis arthritis; (12) smallpox arthritis; (13) dysenteric arthritis; (14) glanders arthritis; (15) pyemic arthritis. *B.* Arthritis deformans. *C.* Osteo arthritis. *D.* Traumatic arthritis. *E.* Gouty arthritis. *F.* Hemophilic arthritis. *G.* Senile arthritis.

On account of the confusion and disputation existing on the question of classification I would offer the following reasons for the above grouping.

Idiopathic arthritis probably never occurs. In infective arthritis there is usually more than one agent, and the effect of the agent is modified by various conditions,[1] *e. g.*, the resisting power of the individual, the dose of the toxin received, and by the presence of other organisms or their toxins. The synovial membrane of joints has a marked tendency to become involved in many of the acute infectious diseases.

This shows itself in four different forms [2]:

First. — By a transient synovitis with limited effusion, *e. g.*, typhoid, scarlet fever, influenza.

Second. — Those with marked swelling and effusion of fluid into the joint which later becomes turbid and purulent.

Third. — Those having involvement of the peri-articular structures, *e. g.*, gonorrheal.

Fourth. — Those cases in which the arthritis is acute and destructive from the start, suppura-

[1] Read before The Massachusetts Medical Society, North Middlesex District, Oct. 28, 1903.

tion is early and violent, *e. g.*, pneumococcic infection.

It is very probable that all organisms which cause arthrites produce other pathological conditions as well.[3] While there are some exceptions yet unexplainable, it can be stated as a general rule that all acute arthrites are secondary manifestations. In doubtful cases the probability of mixed infection must be borne in mind. The role played by the nerves in the course and development of joint affections is very great. The close relation existing between acute rheumatism and chorea, as well as the positive factors, sex, age, mental and nervous fatigue, shock, etc., are, especially in arthritis deformans, open up a wide field for investigation.

In the above classification rheumatism is placed under infective arthritis because it is now generally understood that this symptom complex is due to some form of micro-organism. Walker[4] has isolated a micro-organism which he calls "micrococcus rheumaticus." Other factors tending to establish this relationship are[5]: its endemic and often epidemic nature depending upon climatic conditions; its many manifestations, variety of lesions, fever and sweating resembling tuberculosis and pyemia; its tendency to recur, especially upon exposure, resembling pneumonia and erysipelas; its liability to relapse like enteric fever, and to end spontaneously as do the exanthemata. Then, too, the close relationship between affections associated with follicular tonsillitis and those associated with rheumatism, namely endocarditis, pericarditis, pleurisy, chorea, erythema nodosum, as well as other cutaneous and subcutaneous effusions such as purpura, pneumonia, peritonitis and profound anemia. The occurrence of arthritis, pleurisy, etc., with puerperal sepsis also points strongly to the septic association of rheumatism.

There seems to be as little foundation for the term rheumatic diathesis, or uric acid diathesis, under such a classification as there would be to speak of a pneumonic or septicemic diathesis. The uric acid condition has been demonstrated in athletes in whom no suspicion of rheumatism or gout existed.[6]

In the classes arthritis deformans and osteo-arthritis a distinction is made between those cases in which there is a true bony enlargement of the joint and those in which the deformity is due to an atrophy of the surrounding tissues, causing an apparent rather than a real enlargement. The former class is a true osteo-arthritis and is so-called. The latter is a deformity due in all probability to some trophic change depending upon disturbances of the nervous system.

The clinical signs and pathological findings of each are different and characteristic. As the treatment of the two affections is very different it is essential that this distinction be recognized. It is the failure to do this that has resulted in so many permanent cripplings, also salicylic acid poisoning.

Whether arthritis deformans, like some other conditions, results later in osteo-arthritis does not alter this classification. The point is that all joint affections which have true overgrowths should be called osteo-arthritis, the suffix deformans being understood; the term arthritis deformans being limited to the conditions characterized by appearances quite typical and constant to be described later. Much confusion in reading textbooks and medical literature will be avoided if some such distinction is maintained, and if the term rheumatism is limited as signifying a clinical picture unlike any other joint affection, rather than an arthritis occurring in the course of many diseases. This would eliminate all such terms as muscular rheumatism, tuberculosis rheumatism; scarlatinal, gonorrheal, gouty, typhoidal, etc., with the suffix rheumatism.

DIAGNOSIS.

Infective arthritis. — There is usually a history of a primary infection to which the arthritis is secondary.

In the case of acute rheumatism, the following signs are characteristic: (1) *History.* —Often follows tonsillitis, especially the suppurative form. In the majority of cases the previous health is good and there is entire absence of any constitutional disturbance. In 270 cases occurring at Johns Hopkins Hospital, 60% occurred between ages of eleven to thirty years; 30% occurred between the ages thirty to fifty years. There was a family history of rheumatism in 25% of the cases; 45% had had previous attacks.[7] The onset is sudden and without a chill in 94% of the cases in the Johns Hopkins series. Cold, damp weather and exposure are factors but do not cause rheumatism.

(2) *The character of the inflammation.* —Rapid development of pain, swelling and heat in one or more joints. In twenty-four hours after onset the temperature ranges from 102° to 104°, with a pulse which is more apt to be under than over 100. The temperature is not remittent, thus differing from most of the other arthrites, and it has very slight depressing action on the central nervous system.

(3) *Pain.* — As it attacks a new joint it always leaves the old one, and it is this flitting from joint to joint which often serves to distinguish it from other diseases.

(4) *Results.* — It runs an acute course, averaging three to six weeks, with a marked tendency to get well. It does not deform the joints, *i. e.*, the joint is left as uninjured as it was before the attack. The endocardium is involved in fully 60% of the cases. It tends to recur. It never suppurates. It rarely becomes chronic.

In 100 cases of alleged chronic rheumatism lately examined by the writer, only 19 gave a history of a previous acute rheumatism. In 14 of these, closer questioning or the result of the examination threw considerable doubt upon the nature of the primary attack.

The term "chronic" relates entirely to time, therefore chronic rheumatism, so-called, implies

a long continued or slowly progressing rheumatism. This we know is not the nature of infective rheumatism.

The term *recurrent* is more truly descriptive of the majority of these cases. Such cases may eventually result in deformity, but they then become osteo-arthritis, and should be so called and treated. Any case of acute arthritis which leaves the joint impaired, or which fails to yield to salicylates should excite suspicion as being something other than pure rheumatism. Such cases will usually be found to be due to some other toxin or to some blood or nerve dyscrasia.

Among the conditions most commonly called chronic rheumatism are [8]: (1) relaxed ligaments (flat foot). (2) Occupation neuroses, which are usually worse in damp weather, and which are not peculiar to any special occupation, but occur when faulty positions throw unusual amount of work upon any one set of muscles. (3) Neuritis, due to circumflex nerves sending trophic fibers into the joint. (4) Gout which is more common in this country than supposed, *i. e.*, it is three-fourths as frequent at Johns Hopkins as at St. Bartholomew Hospital, England; most common among lead workers and beer drinkers. The differential diagnosis of acute rheumatism and acute gout is very difficult. The gouty nodules in the ears, or tophi on the fingers are characteristic of gout. (5) Multiple neuritis is often mistaken for rheumatism, but the absence of knee-jerk and the alcoholic history, as well as the future course of the disease serve to differentiate them.

Chorea and acute rheumatism are closely allied. The concensus of opinion to-day seems to point to chorea being a manifestation of cerebral rheumatism in which the infective agent has acted upon the serous membrane of the joints and brain, and has also reached the cortex itself, thus producing convulsive movements.[9] This is in contra distinction to the theory that some infective agent acted directly upon the nerves themselves. The increased reflexes noted in rheumatism are probably due to the same cause.

In gonorrheal arthritis the history is important. It is often limited to one joint, especially the left knee, and is not as painful, has less fever, and does not go from joint to joint. The inflammation is in the peri-articular surface and extends along the tendons. The effusion is rarely purulent, although suppuration of the sheaths may be found. This is important in a bacteriological examination of the joint as colonies of gonococci can be obtained in cultures taken from the outgrowths on the synovial membrane while the fluid fails to show their presence.

In opthalmia neonatorum arthritis has occurred which yielded promptly and completely on curing the conjunctival discharge. In the multiple gonorrheal arthritis it is often hard to differentiate. It is usually confined to the lower extremities, and often attacks the sterno-clavicular, the intervertibral, the temporo-maxillary and the sacro-iliac articulations, joints rarely involved in acute rheumatism. The possibility of this form of arthritis in newly married women infected by an old gleet of the husband should be borne in mind. Gonorrheal arthritis is most intractable and this often serves to distinguish it from rheumatism. It is far safer to regard atypical or doubtful arthritis as being of gonorrheal origin than due to rheumatism.

There is nothing characteristic in the blood in rheumatism, notwithstanding the marked anemia so often associated with it.

In arthritis occurring with purpura, the existence of urticarial wheals in addition to other signs of purpura is usually sufficient to distinguish it from rheumatism. Sore throat and even pericarditis may occur in this form of arthritis.

Arthritic manifestations in pneumonia indicate a general pneumococcic infection and have a mortality of 60%.[10]

The arthritis occurring in scarlet fever is not rheumatic. Recent investigators [11] ascribe the joint trouble to streptococcus pyogenes, and consider it one of the manifestations of scarlet fever, rather than a rheumatism complicating the disease. It usually attacks the wrists and fingers, or other small joints. In the monarticular form there is a greater tendency to suppuration.[12] The arthritis occurs most often at the end of the second week before desquamation sets in.

Lately French writers [13] have described arthritis occurring in connection with lupus, as tuberculous rheumatism but which had better be called tubercular arthritis. This is painful and always slow in developing, although there is usually a history of traumatism from which the family date the trouble. The family history of tuberculosis or the presence of tuberculosis in other parts of the body is important. There is usually very little fever. The joint enlargement is soft and symmetrical. Monarticular rheumatism is more often regarded as tuberculosis than the contrary. A mixed infection of these two conditions is not uncommon. Joints in defective positions, with abscess or fistula, accompanied with muscular atrophy, justify the diagnosis tubercular arthritis. This form of arthritis closely resembles the syphilitic arthritis. The latter is usually limited to one joint and is painless, or painful only at night. A characteristic point about this class of syphilitic affections is that the amount of movement preserved by the joint is far greater than in any other joint affected by the same amount of disease. In doubtful cases the history and therapeutic tests are important aids.

Syphilis attacks the joints symmetrically and it rarely relapses, thus differing from rheumatism.

As to arthritis of the spine associated with typhoid, the conditions most likely to resemble it are myelitis, sciatica, hip-joint disease, tumors of pelvic bones, bone disease, malingering or muscular pains, and pachymeningitis.

Arthritis occurs in connection with influenza

erysipelas, smallpox, appendicitis, spinal meningitis, dysentery and glanders, but in none is there much resemblance to acute rheumatism with its sudden onset, its joint to joint evanescence, never suppurating, and always leaving perfect joints. There is, however, one form of infective arthritis which closely resembles acute rheumatism, and upon the differential diagnosis of which serious consequences depend. I refer to *acute osteo-myelitis.*

There is, perhaps, no more serious condition in which rheumatism should be positively excluded than in acute-osteo myelitis. We must be able to recognize this disease in the first forty-eight hours if we expect the best aid from the surgeon. There is a pocket of pus in the bone and if it is not immediately drained, absorption, high temperature, delirium and septicemia follow, resulting often in death, or at the very best in destruction of the bone.

The symptoms that distinguish acute osteo-myelitis from acute rheumatism are classical. Chill, acute pain followed by high temperature, sepsis with its symptoms of absorption, delirium and death. The pain is usually in the extremities of long bones. Usually, especially in children, there is not an effusion into the joint near the focus in the first forty-eight hours. This is different from rheumatism in which effusion occurs in first few hours. The greater intensity of local symptoms, the involvement of the epiphysis rather than the joint, and the more constitutional disturbances are all characteristic.

In the first forty-eight hours pain and sepsis increase but there is no local sensitiveness. Deep and continued pressure for two minutes elicits excruciating pain and frequently indicates the seat of the infection.[14] There is a board-like infiltration of skin and muscles with subsequent involvement of joint and suppuration. Most of the cases occur between puberty and twenty-five years. The favorite seats are head of humerus, lower end of femur, and upper end of tibia. Monarticular pain in children should suggest osteo-myelitis. If there are scars of former operation over the bone the pain is probably a second attack of osteo-myelitis. In many cases there is an existing furuncle, traumatism without external lesions, skin wounds, or one of the infective diseases.[15]

In doubtful cases aspiration is justifiable. The disease may simulate typhoid fever. Blood examination may be helpful in the diagnosis. There is a decided leucocytosis in the early stages of osteo-myelitis, thus differing from typhoid and rheumatism.

No acute arthritis occuring in connection with a possible pyogenic infection should be looked upon as rheumatism or gouty until osteo-myelitis has been positively excluded.

The chronic form of osteo-myelitis is often diagnosed chronic rheumatism, but the localization of the pain in the bone rather than in the joint, and the evidence of necrosis will often serve to differentiate them.

Arthritis Deformans.

This is a good descriptive term and has the advantage in eliminating all reference to rheumatism and gout. It is probably due to some nerve disturbance, and is an apparent enlargement of the joints due to the atrophy of the muscles and inter-articular cartilages. It closely resembles rheumatism is its acute stage, and may occur in combination with acute rheumatism, but it is not caused by rheumatism. It is non-inflammatory and may occur without pain. There is seldom redness or tenderness. It is rarely monarticular, and it never suppurates. There are no true bony enlargements. The characteristics of arthritis deformans are: the spindle-shaped appearance of the joints, its soft boggy feeling, its symmetrical development, beginning in the small joints and spreading without leaving the first joint, its stationary character, never flitting from joint to joint, and always leaving the joint deformed. It is less painful than rheumatism and has a tendency to attack young and middle aged women, especially when there has been any wear and tear of the nervous system. It often comes on insidiously, lasts months, and does not involve the heart. The process stops grating and ankylosis, with resulting deformity, is left. The deformity is usually one of extension or flexion, seldom lateral. In the polyarticular form of any arthritis which does not leave the joint uninjured, especially if the pain and disturbance are more annoying when the patient is worried, or under a nervous strain, we should suspect this form of arthritis. Gout is excluded by the absence of deposits of urates. The so-called Charcot joint is in all probability one of this class. It is readily recognized by the history of tabes as well as the increased lateral movement of the joint without pain. Intermittent hydrops,[16] characterized by painless swelling of sudden onset, without heat and redness, is probably due to some vasomotor neurosis.

The form of arthritis described by English observers,[17] as acute rheumatoid arthritis, confounds acute rheumatism and arthritis deformans more often than any other affection. In this disease occurring in young women a distinction is made in the swelling beginning in the proximal phalangeal joints, extending beyond the affected joints, and becoming fusiform in shape. Other joints become affected until the patient is helpless. There is much muscular wasting or atrophy. It runs a definite course, lasting about three weeks. It attacks the fingers first and spreads to other joints, involving the temporo maxilliary and spinal joints, and it leaves the joints immobile and enlarged, points which clearly eliminate acute rheumatism. Its association with influenza, parotitis, and the like, would suggest a microbic origin, acting no doubt through the nervous system, producing trophic changes in the joints, resulting in arthritis deformans. It is neither rheumatic nor osteo-arthritic.

There are seldom any adhesions in arthritis

deformans. Contractions and stiffening from faulty posture, and extensive degenerative erosions of the cartilages may result. These must not be mistaken for true bony growths which are the characteristics of osteo-arthritis.

Osteo-Arthritis may result from many causes. It may start without any known cause. The disease is essentially a chronic disease, the so-called acute painful period being due in all probability to a double infection. At first there is very slight deformity, and often the person is unaware of any enlargement on account of the gradual development of the disease. The pain is more often at night and is considered rheumatic. It usually affects the large joints (knee), and is often unilateral. It is a true bony growth, "ring bone," and locks the joint mechanically by the formation of osteophytes at the ends of the bones. Change of position often aggravates the pain, especially in the spinal form, and the person walks with a characteristic gait. This serves to distinguish this form from lumbago. The disease is more common in men, especially old men, but it does occur in young people. The true nature of the disease is obscure. Cold and damp may be factors in the etiology, but they do not cause the disease. There is less atrophy of muscles and less synovial swelling than in arthritis deformans. The enlargements are bony and not cartilaginous. The joint capsule is relaxed. The deformity is due to the hypertrophied tissue, as well as to enlarged bone. These hypertrophies have a tendency to form on the dorsal side of the joint, causing a lateral deformity or flexion, thus differing from the deformity of arthritis deformans which is usually one of hyperextension.[18]

In osteo-arthritis due to the presence of Heberden's nodes a very slight injury will often set up an active process resulting in increased deformity and a permanent disability far in excess of that expected from a light blow. The presence of Heberden's nodes in other joints will often confirm this fact. Such nodes suggest strongly the presence of osteo-arthritis, rather than arthritis deformans, and are valuable in deciding the diagnosis, prognosis and treatment in a given deformity.

In arthritis deformans there is practically a false ankylosis which is amendable to proper manipulations, while in osteo-arthritis any manipulations of the joint would most likely break off some of the osteophytes with increased irritation in the joint.

A form of osteo-arthritis occurring in the spine, *spondylitis*, is far more common than supposed.

There may be little or no subjective symptoms referable to the back, and there may be much overgrowth of bone without any marked deformity. The deformity is greater in the slowly developing cases than in the more active process, and its nature depends upon the surface of the bone affected. These cases are usually diagnosed lumbago or rheumatism. The different motions of vertebral articulations should be tested in every case of backache, especially when such is aggravated by change of position, and associated with neuralgic pain, or sensory disturbances in the legs. Even in the early stages there is a "spot" in the spine at which the pain is localized. It can be differentiated from Pott's disease by the pain being local, rather than referred or abdominal, as in Pott's. In doubtful cases the use of tuberculin and the Rontgen rays are helpful. If paralysis has supervened it is peripheral in spondylitis while that due to Pott's disease is paraplegic.[19]

In spondylitis the paralysis is seldom equal on both sides. There is often an associated ankylosis and fixation of the thorax. As the disease advances the tissues shrink and pressure on the cord and nerve roots is released. This results in the abatement of the nerve symptoms, and is often mistaken for an improvement in the osteo-arthritis with an unfortunate relaxation in following the prescribed treatment.

Traumatic Arthritis. — The history of the case is important, care being taken that the trauma is not the exciting cause of an osteo-myelitis or other infectious arthritis, rather than the cause of a simple arthritis. There is usually water in the joint in traumatic cases. Joint mouse or floating cartilage belongs to this class.

Gouty Arthritis. — Many arguments can be offered in support of the theory that gout is due to the destruction of leucocytes in their battle with toxins rather than to uric acid.[20] This brings it nearer to the infective group of arthrites. The characteristics of gouty arthritis are sudden onset, especially at night, often disappearing in day time, also the presence of deposits in the ear (tophi). It attacks usually single small joints. A distinction should be made between a scanty urine with high specific gravity which is permanently so, and one with the same characteristic dependent upon exercise, diet, etc. In chronic gout ulcerations often occur about the finger joints, from which urate of sodium crystals can be collected.

Hemophilic Arthritis. — This should be kept in mind especially in arthritis suggesting surgical interference. A recent writer reports 252 cases.[21] Traumatism does not seem to be an artiological factor. The joint becomes distended with blood. There is a feeling of tension and pain, but no tenderness or symptoms of inflammation. Echymosis in a few days followed with apparently full recovery. This condition soon recurs and results in thickened and roughened synovial membrane, structural changes in the joint, muscular atrophy and resulting deformity resembling osteo-arthritis. The disease occurs usually between the fourth and sixth years and most often in males. The joints affected are knee 50%, elbow 25%. The mortality in hemophilics is less among those having arthritis than among the others. It is 60% in the latter class.

In *Senile Arthritis* there is a thickening of the capsule, but not of the bones. It has no relation to rheumatism and is more stiffness than

soreness. It does not involve the heart and grows better as the day progresses.

Rheumatism in children differs somewhat from that of adults. The tonsils are the most common source of suspected infection. The arthritic symptoms are not as well marked as in adults, and are more apt to come on insidiously. Recurrent tonsillitis, chorea, erythema, or nose bleed, are often associated with arthritis. Continued fever with slight remissions suggests endocarditis.[22] There is not the same successive involvement of joints seen in adults. The family history, or a history of "growing pains," especially if accompanied with even slight swelling (fibrous nodules) suggests rheumatism.

The distinction between rheumatism in adults and that of children is best told by Cheadle, in a single sentence:

"The various manifestations of rheumatism massed together in the case of adults tend to become isolated in the case of children, so that the whole phenomena are distributed over years, instead of weeks or months, and the history of a rheumatism may be the history of a whole childhood."[23]

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Clinical Department.

REPORT OF CASES OF DECAPSULATION OF THE KIDNEY.[1]

BY F. G. BALCH, M.D., BOSTON.

THE following cases are reported in the endeavor to add a little to our knowledge of the results obtained by various surgeons in their efforts to cure a disease, which until recently has been considered purely medical, by surgical interference.

CHRONIC DIFFUSE NEPHRITIS. DECAPSULATION.

CASE I. Ellen W., thirty-three, married. Laundress. Entered Massachusetts General Hospital, Nov. 5, 1901.

Personal history. — Unimportant, excepting she has for several years drunk one-half gallon of beer daily. Subject to headaches and vomiting spells.

[1] Read at the annual meeting of the Suffolk District Medical Society, October 31, 1903.

Present illness. — For past two or three weeks severe headache, vomiting and swelling of feet and abdomen. Urine scanty. Diarrhea persistent.

Examination. — Well developed but obese. Heart and lungs negative, except for few râles in back. Much edema of feet, legs, thighs, back and face, with marked ascites. Pulse 70, small volume, low tension. *Urine.* — Acid, 1,009, albumin 2¼%. Sediment, blood, chiefly abnormal, many fatty renal cells, and hyaline, granular and brown granular casts. Quantity in first three days, less than 10 oz.

With daily hot air baths, pilocarpin and purgative treatment she improved slowly during first two months. Amount of urine rising to from 25 to 40 oz. per day. Albumin falling to ¼% on average. Casts and blood corpuscles fewer in number.

During winter very slight improvement. Ascites required tapping.

March 24, 1902. Less edema and ascites.

Occasional headache and vomiting. *Urine* 1,012, smoky. Albumen ½%. Sediment as before, with occasional waxy cast. In spite of this apparent improvement patient's general condition became so much worse that operation seemed advisable.

Operation, March 28 on both kidneys. Tissues edematous, kidneys small, dark, granular in appearance; patient stood operation well. During first three days after operation twenty-four-hour amount of urine rose from 20 to 40 oz. Improvement after operation slow, but less headache and vomiting.

May 1. Less edema, and in legs and feet only, but ascites continues; tapped and 8 qts. of fluid drawn. *Urine* shows fewer casts, hyaline and granular, with fat; fewer renal cells and blood corpuscles; albumen ¼%.

June 1. Patient stronger, appetite improved; still occasional headache and vomiting. *Urine* pale, about 1,010, average 30 oz. in twenty-four hours. Albumen, large trace. Casts same as before, with renal and fatty renal cells, few blood corpuscles. Returned to medical ward June 6. Hot air baths renewed and diuretics, which raised amount of urine to an average of 40 oz. Abdomen requires tapping about once in three weeks. Discharged July 20, 1902, when she felt well, but vomited every few days; had no edema and very little ascites. *Urine* pale, 1,011; albumin $\frac{3}{10}$%. Occasional hyaline casts; renal cells, with fat; occasional blood corpuscles.

Patient returned to hospital in October, 1902. Had felt well since operation and had been doing housework daily, and said that she was better than she had been for a long time.

Urine then showed ⅛% of albumen, with a sediment of a few waxy, many granular casts, with fat adherent; few red corpuscles, and compound granule cells. Patient lost sight of and subsequent history unknown excepting that she died in May, 1903, after considerable excess in alcohol.

CASE II. Mary B. L. Twelve years old.

Etiology. — She had measles, mumps and scarlet fever as a child. She has always been well and strong. Last February caught cold and was at home a week. Two days later her feet swelled and she was edematous below her eyes. She had no headache or disturbance of vision. She had been under treatment since April 16.

Examination. — The tension of the pulse was somewhat increased. There was slight dullness in the flanks shifting on change of position. There was edema of the feet and legs and under the eyes. *Urine.* In the medical wards before transfer she had been secreting from 8 to 10 oz. of urine a day. On the

23d it was 9½ oz.; on the 24th and 25th it fell to a little over 3, and on the 26th, 2 oz. An examination on the 23rd showed the urine to be smoky in color, acid, 1,031, ½ to 1% of albumen. The sediment was typical of parenchymatous nephritis. Urea 3.59%.

Operation. — Dr. Scudder decapsulated both kidneys June 22, 1903, and a fragment removed was reported typical of sub-acute glomerulo-nephritis.

Subsequent history. — Next day Cheyne-Stokes respiration developed but the patient was bright when spoken to and had no headache. On the 24th there was much less edema but great dyspnea. Next day the dyspnea was better, but there was more edema, and on the 27th she died.

Case III. A. S. R., twenty-seven years old. Seen by Dr. A. T. Cabot in consultation with Dr. A. W. Dudley of North Cambridge, on June 10, 1903.

Three years before patient first learned that his urine contained albumen. From that time meat was omitted from diet. One year ago, he consulted Dr. Dudley for swelling of feet.

Examination of Urine. — 1,018, albumen ¼%. Casts hyaline, granular, and fatty; renal cells. Ten months ago stopped work, and has kept very quiet. Has slowly lost strength, and has had slowly increasing edema of dependent parts.

Examination of urine at this time was as follows:— 1,015, much sediment, albumen ¼%; considerable pus since one catheterization; casts about as before, numerous hyaline, sometimes with epithelium adherents; large and small granular. Had a convulsion ten months ago, which was succeeded by nine or ten others, followed by a coma for forty-eight hours. Later, about Thanksgiving, had several more convulsive attacks, followed by a week of coma, thought possibly to be due to a blow on the head. On April 15, two seizures, with coma for twelve or fifteen hours. On May 15, three seizures in six or eight hours; coma for forty-eight hours. Urine always runs up in amount before seizures, and once reached 178 oz. in a day before attack; it decreases immediately after attack. Average amount of urine has shown steady decrease.

Operation not advised, but demanded by patient and friends, who understood the desperate nature of the case and wished to take desperate chances.

Operation June 18, 1902. Much edema in tissues. Large white, mottled kidneys.

Patient made good recovery, but effect of operation on kidneys was practically nil. Gradually lost strength through summer and died early in September. No autopsy allowed.

The average amount of urine after the operation was from 50 to 60 ounces, with considerable variation, at times above 100 oz.

Case IV. Mr. A. G. H., forty years old. Seen by Dr. A. T. Cabot, in March, 1903,.

Albumen had been discovered in his urine first in the year 1900, when he was being examined for life-insurance.

In January, 1902, he was seen by Dr. J. H. Grimes, who found indications of interstitial nephritis, and shortly after that time retinal hemorrhages appeared. Mr. H. rapidly became worse, and during that winter had several slight convulsions, followed each time by a period of somewhat more than a week during which he knew that he was in the hospital, and recognized his friends, but had forgotten much of the immediate past, and did not know how he came to be in the hospital, nor what he was there for. During each of these periods he talked intelligently, but when they had passed, the time was a blank to him. In the latter part of February, and early in March, he had several severe convulsions, which left his mind very much impaired, and it was at this time that Dr. Cabot saw him.

Examination showed right kidney somewhat movable, coming down width of hand below ribs. *Urine.* March 26, 1902, pale, alk. 1,010, albumen, ¼ to ½%. Sediment considerable; pus, small and large round, compound glanular cells. Some abnormal blood. No casts seen.

Operation. — March 27, 1902. Capsule of kidneys more adherent than normal. Kidneys are dark and congested, with a roughly granular surface. Blood pressure immediately after operation, 210.

April 1, 1902. In past two days twenty-four-hour amount of urine has been 88 and 55 oz. respectively. No convulsions except one just after operation. Sediment has become less in quantity.

April 4, 1902. Albumen had fallen to less than ⅛%. Blood pressure had fallen to 180.

April 17, 1902. *Urine* normal in color; alkaline; 1,010. Total, 50 oz. Albumen, large trace. Sediment slight, chiefly pus. Some round cells, and few normal blood corpuscles. Some hyaline casts, with renal cells, and little fat adherent. Few highly refractile casts.

May 5, 1902. *Urine* twenty-four-hour amount 53 oz. Albumen, ⅛%; 1,004; no casts seen.

No convulsions, mind perfectly clear, up in chair; died suddenly May 12, 1902.

Autopsy.— Heart hypertrophied, adherent to pericardium. Valves free from deformity. Coronary arteries show some sclerosis. Kidneys, weight of both, 280 gms. Each is invested in fairly abundant perinephritic fat, which, upon dissection, shows nothing abnormal. Each is invested also in a capsule rather lightly adherent to a surface marked by coarse granular elevations interspersed with deeper, more extensive depressions. The elevations themselves, smooth and of the normal kidney color. No vascular attachments of the capsule to the kidney are apparent. Upon section, markings fairly distinct, cortex $\frac{6}{10}$ cm. in thickness. Glomeruli faintly visible. Pyramids dark, bluish and red.

Cortex marked by radial red lines. Consistence tough.

Microscopically there were no blood vessels between the kidney and the capsule. The arterioles show arterio-sclerosis. The veins and capillaries are injected. There was an organized pneumonia and edema and congestion of the lungs.

Case V. Margaret L. C., twenty-three years old.

Etiology. — In doubt. With the exception of pneumonia at six, well until present illness began.

Present illness began two and a half months ago, with swelling of ankles at night. Seven months later the swelling became general and she was very uncomfortable and short of breath. There was no headache, dyspepsia, pain or impairment of vision. The edema never entirely went, but at times was confined to the legs. Ten months ago she had pneumonia and has been very susceptible to "colds" since. Thinks she has been very much better in the last few months. She lies about the house, and occasionally goes to the theatre or for a short walk.

Examination. — Patient was fairly well developed and nourished. She was pale and had some edema about the eyelids. There was considerable edema of the lower part of the back. Heart apex in fifth interspace in the nipple line. Aortic second accentuated. No murmur. Pulse regular, good volume, rather high tension. Lungs normal. Slight dullness in flanks. *Urine.* Typical of chronic diffuse nephritis. Twenty-four-hour amount at entrance 50 oz. and slightly less

at discharge. Average amount normal. Urea varied from 10 to 40 gm.; average amount normal.

Dec. 6, pale, acid, 1,012, 1-10 % albumen. Many hyaline and finely granular casts, with many fat drops and some fatty renal cells adherent. Rare fatty cast. Urea 16.77 gm.

Operation. — By Dr. S. J. Mixter; Dec. 7, 1902, the left kidney was decapsulated. The capsule stripped easily. The kidney was enlarged and covered with yellow granules. A piece of the kidney was removed for examination and reported by Dr. J. H. Wright to be typical of subacute glomerulo-nephritis. As the patient's condition was not good the second kidney was not operated upon until Dec. 20, when the same operation was performed. The kidney was smaller than the right one and had a depressed scar on one side. The capsule stripped easily. The yellow granules were again present.

Subsequent history. — She did well as far as the operation was concerned and was discharged not relieved Jan. 3, 1903. The amount of urine and urea were both less than at entrance. Oct. 19, 1903, her sister reported that she had been much better since her operation. Edema was less, she had a better color, and was stronger. She went about daily. The urine a month ago showed 1-10% albumen. No blood or pus, but still some casts.

CASE VI. George R. R.

Etiology. — Has had asthma most of his life; has had bronchitis, varioloid and children's diseases.

Three years ago had "kidney trouble" and was laid up nine weeks; recovered and had another attack June, 1901.

Examination showed a pale fat man, but fairly well nourished. Lungs showed the physical signs of asthma. Abdomen distended, with dullness over the dependent portions.

Operation. — In November, 1902, Dr. E. A. Pease decapsulated both kidneys. Has been tapped repeatedly and from four to five quarts of fluid removed at times.

Oct. 30, 1903. Dr. Sawyer reports that the patient is in fairly good condition. An examination of the urine shows twenty-four-hour amount 55 oz., color light, slightly acid, 1,014, albumen ¼%; sediment considerable, light, flocculent, many casts, hyalin, fine and coarse granular, some with fatty renal cells and minute fat drops adherent, fatty degenerated cells, a little free fat, an occasional blood globule. The patient has carefully measured the twenty-four-hour amount, which averages over 50 oz. The edema has disappeared.

CASE VII. Carl H., thirty-three years old.

Etiology. — Apart from the fact that he is a painter, nothing obtained. Has had attacks of weakness, with swelling of the feet, face and legs since last April.

Examination. — The heart is enlarged, with a systolic murmur at the apex. Pulse regular, good, high tension. *Urine.* Sept. 17, twenty-four-hour amount, 45 oz., acid, 1,014, 1-5% albumen, urea, 88%. Few hyalin casts, with an occasional fatty cell and blood globule adherent, an occasional fatty cast, considerable free fat, few normal and abnormal blood globules.

Operation. — Dr. Mixter decapsulated both kidneys Sept. 19.

Subsequent history. — Recovery was uneventful and he went to the Convalescent Home Oct. 14. The amount of albumin had fallen to a trace on Oct. 3. The sediment had also improved, but on Oct. 14 there were still a few casts, with fat adherent. The amount of urine just after operation fell to 10 oz. but went up again immediately and at discharge was 70 oz. It has not been possible to see the patient as he has gone to Maine. Letters sent to him have not been answered, but a friend who has heard from him says he is very much better and works steadily, but is afraid to come back to Boston for fear of catching cold. January, 1904. Patient reports that he again has edema of legs, etc. Has had to give up work.

CASE VIII. W. H. K., male; thirty-three years old.

Etiology. — With the exception of "grippe" ten years ago, the patient had always been well up to several months before, when he caught cold. Has drunk five to eight glasses of beer a day until within last two months.

Present illness. — His feet, legs, body and face became moderately swollen. He felt dull and weak and his head ached slightly. He vomited occasionally. One month ago gave up work. Just before operation he had no gastric symptoms, but the edema persisted and he had dyspnea and palpatation on exertion. His eyes were normal.

Operation. — Dr. J. W. Elliott decapsulated both kidneys, removing a small piece from one for microscopical examination. This was reported by Dr. Wright to be typical of a sub-acute glomerulo-nephritis. The substance of the kidneys was soft, grayish and friable. The one the piece was removed from was a little larger than normal.

Urine. — Typical of chronic diffuse nephritis. The amount had been about 80 oz. until just before operation, when it fell to 25 oz., rising to 95 the fifth day after operaton. The average was about 80 oz. The urine report April 8 was: Color normal, acid, 1,017, albumen ¼%, no sugar. There were many hyalin and finely granular casts, with renal cells and blood adherent. There were a few casts, with fat adherent. There was considerable normal and abnormal blood. The amount for twenty-four hours was 45 oz.

Subsequent history. — His condition was improved temporarily, but had occasional attacks of headache and vomiting. He grew worse and died early in June.

Autopsy. — The kidneys were found slightly more tightly bound in their position than in normal perinephritic tissue. Each organ was apparently provided with a capsule which appeared to be readily removable but which was very intimately connected with the perinephritic tissue.

CASE IX. Francis H. J., thirteen years old.

Etiology. — Scarlet fever at four years, with edema of face and legs during convalescence. Urine dark and scanty. Symptoms of nephritis were gone in two weeks.

Present illness. — Not strong since scarlet fever. After, had frontal headache and was easily tired. Rare gastric upset. Summer before entrance had an exacerbation of nephritis for a week. Had grown gradually worse since then.

Examination. — His face was puffy and hands slightly cyanotic. There was a systolic murmur. The odor of the breath was slightly urinous; there was some edema of the extremities, and his feet were cold and clammy.

Urine. — April 11, 1,017, ½% albumen. Fine and coarse granular casts, with fat and renal cells adherent. Amount 60 oz.

Operation. — On April 12 Dr. W. A. Brooks, Jr., decapsulated both kidneys. He found the tissues very edematous at operation.

Subsequent history. — Ten days after operation the edema was still marked. From May 3 on, the patient had daily hot air baths for some days. The baths were then given at two-day intervals and then every third day. On May 29, his edema had practically

gone and his general appearance was excellent. He was transferred back to the medical service on June 9. An examination of the urine May 28 showed 1-10% of albumen, a rare hyaline and finely granular cast, blood globules and a few compound granule cells. The amount of urine varied greatly. It was 60 oz. when he came to the surgical service, 30 on the day of operation, 60 on the fourth day and 120 oz. on the twenty-fifth day. Dr. Torbert saw the boy Oct. 15. He has been well since July 15, 1902. Two months ago, his mother says, he had a headache and was slightly edematous about the face and hands. This all went in twenty-four hours. He goes to both day and night school, eats well, and is very active. The scars are firm and there is no pain or tenderness in the kidney region. His tongue was clear and breath sweet.

The urine was examined and was free from albumen and casts. It was pale, acid, 1,013. The urea was 88% in the specimen examined. He gets up two or three times at night to pass water and passes a good amount during the day.

To summarize these cases briefly:

Five have died at periods ranging from five days to two years and two months after operation. One case is probably cured. As the urine has only recently been found free from albumen and casts it is too early to classify it as cured. One case has improved and is still gaining, eleven months after operation. Two cases, a year after operation, show very little if any improvement.

In the nine cases the disease was of the chronic diffuse type. In each case ether was the anesthetic used. In two cases in which there was an autopsy some time after operation it was found that a new capsule had formed not essentially different from the old one. The amount of urine and urea varied within wide limits. It was invariably smaller than usual the day after operation but regained or exceeded the previous amount within a few days.

DECAPSULATION OF THE KIDNEYS.[1]

BY JOSHUA C. HUBBARD, M.D., BOSTON,

Third Assistant Visiting Surgeon, Boston City Hospital; Assistant in Surgery, Harvard University.

CASE I. P. M. Male, forty-two years. Entered the hospital June 3, 1902. He had had measles but no mention was made of scarlet fever. He used alcohol to excess. He had had increased nocturnal micturition for five months. Later edema, anorexia, insomnia, epigastric pain, headache and diarrhea appeared. On entrance there was evidence of fluid in the chest and abdomen. There was edema of the legs, genitals, back, abdominal walls and face. The radial arteries were sclerotic. The urine was smoky neutral, 1,019, albumen ¼%. The sediment contained some normal blood, fine granular and hyaline casts with fat drops and fatty renal cells adherent, some fatty renal cells and compound granule cells and triple phosphate crystals. The urea was 1.82% and the twenty-four-hour amount of urine about 36 oz. He did not improve under medical treatment and was operated upon by Drs. Burrell and Blake on June 14. Ether was the anesthetic. Improvement began immediately after the operation. The edema began to decrease in ten days and was entirely gone in six weeks. The amount of urine increased to 150 oz. He was discharged on Aug. 2. At that time the urine was smoky, 1,012, acid and contained 1-10% albumen. The sediment contained an occasional cast with fat, a few renal cells, leucocytes and blood. He was seen last on Oct. 27, 1903, a year and four months after the operation. He is now free from all symptoms, does not have to rise at night to urinate, has no trouble about doing his work — that of a general man on a summer place. He looks well and has no edema of the ankles. He is still drinking as he chooses. The urine passed shortly after a meal was pale, slightly acid, 1,002, urea ½%, albumen slight trace. Nothing found in the sediment.

CASE II. J. S., female, thirty-nine years old. Patient had been in the City Hospital several times since 1894 for fistula in ano and a tubercular proctitis. In 1894 the urine was normal except for pus in the sediment. She entered the medical wards in July, 1902, with a history of chilly sensations, fever, dyspnea, increased frequency of micturition and edema covering a period of four months. The previous history was negative except for the surgical affections mentioned above and measles. There was no mention of having had scarlet fever. The urine examination was as follows: specific gravity 1,006; twenty-four-hour amount 74 oz., albumen ½%. The sediment contained pus, a few hyaline and fine granular casts, a little free fat, a few small round cells, fatty renal cells and red corpuscles. Examination for tubercle bacilli was negative. The symptoms increased in spite of medical treatment and she was transferred for operation.

She was operated upon by Drs. Munro and Blake on Sept. 12, 1902, under ether anesthesia. Each kidney was stripped of its capsule. The pathological diagnosis of specimens taken at the operation was "marked acute degenerative nephritis, slight amyloid degeneration of glomeruli, slight chronic nephritis."

After the operation the urea increased from 1.13% to 1.64%, but the actual amount diminished from 13.90 gm. to 12.60 gm. The edema disappeared. Two and one half months after operation the urine contained ½ to ½% albumen, considerable pus, hyaline and granular casts, many renal cells and some blood corpuscles. She developed a cough, her strength gradually failed, and there was occasional edema of the face. She died without unconsciousness or uremic symptoms on March 18, 1903, six months after operation. The clinical diagnosis at the time of death was tuberculosis of the apex of the right lung, tubercular ulceration of the rectum, tuberculosis of the kidneys. The latter was justified in spite of the negative findings in relation to the bacillus of tuberculosis in the urine.

CASE III. T. E. D., male, thirty-one years old, entered the hospital July 1, 1902 having had headache, edema and dark colored urine for several days. He remained in the medical wards till September and was then discharged. His history furnished no cause for the nephritis except a moderate use of alcohol. He was admitted to the surgical wards on Sept. 17, the edema having returned after discharge accompanied with pain in the back and increased frequency of micturition. The urine at that time was acid, 1,013, albumen ½%, the sediment contained numerous hyaline and fine granular casts of small diameter with renal cells adherent, considerable blood free and on casts, some fat and many renal cells, occasionally fatty. The twenty-four-hour amount varied from 40 to 60 oz. Urea 14.52 gm.

The operation was done, under ether, Sept. 26, 1902,

[1] Read at the annual meeting of the Suffolk District Medical Society, October 31, 1903.

by Drs. Munro and Blake. The pathological diagnosis from bits of the kidney taken at the operation was "chronic glomerulo-nephritis, so-called parenchymatous." Two weeks after the operation the edema was gone and the patient was discharged one week later. April 24, 1903, the patient reported that he had done heavy work every night till three weeks ago and felt stronger than ever. At that time he began to drink hard and continued this for two weeks when edema of his face reappeared. While he had been drinking, his urine, which had been clear, became the color of bock beer. When seen April 24 he looked well, had slight edema of the ankles, had gained twenty pounds. The urine was smoky, acid, 1,005, albumen ¼% urea .88%. The sediment contained normal blood, a few leucocytes, some renal cells with fat adherent, an occasional compound granule cell and a very few hyaline and fine granular casts. I have made unsuccessful attempts to find this patient this fall and therefore am unable to give his present condition.

CASE IV. Male, twenty-six years old, entered the hospital Jan. 13, 1903. As a child he had had measles, scarlet fever and whooping cough. Eight years before entrance he had had pneumonia. For six months he had had malaise and indigestion and for four days backache, edema of ankles and dark colored urine. There was general edema and râles over the entire chest, the heart being negative. The urine was high, acid, 1,029, albumen ¼%. The sediment contained many casts, hyaline and fine granular, with small round cells, blood corpuscles, leucocytes and renal cells adherent, a little fat and a few abnormal red cells. He had albuminuric retinitis. The twenty-four hour amount was usually in the neighborhood of 30 oz. His symptoms grew worse and the edema increased under treatment.

Operation under ether Jan. 30, 1903, by Drs. Burrell and Munro. He was in poor condition during and after the operation. Pathological diagnosis from bits of the tissue taken at the time of the operation, "subacute glomerular (amyloid) nephritis." The urine after operation did not change except for the appearance of some red blood corpuscles. On the second day he passed 14 and on the third 20 oz. He was conscious. He vomited for twelve hours on the third day. The vomiting was finally stopped by some spirits of chloroform. He then retained milk and lime water. He lost strength and finally died, without signs of uremia, on Feb. 4, five days after operation.

CASE V. Male, twenty-nine years old, entered the hospital Nov. 19, 1902. He used alcohol to excess. For two weeks he had had chilly sensations, fever, slight cough, headache, nausea and vomiting, edema, a scanty and high colored urine, and diarrhea. The urine was smoky, acid, 1,026, albumen ⅛%. The sediment contained very many casts, hyaline and granular, with renal cells, fat drops and blood globules adherent; few squamous epithelium cells, neck of bladder, small round cells leucocytes and red corpuscle. Urea varied from 2% to 7-10% and the twenty-four-hour amount of urine from 20 to 50 oz. He did not improve after more than two months of medical treatment. At that time the urine was practically unchanged and there were evidences of fluid in both pleural cavities and the abdomen. He had albuminuric retinitis. Operation under ether Jan. 27, 1903, by Drs. Burrell and Munro. The pathological diagnosis from specimens removed at the time of the operation was "subacute glomerular nephritis." After the operation the amount of urine dimished at first and then increased and the edema decreased somewhat. Five weeks after the operation he developed a bronchopneumonia from which he nearly died. On April 14, almost three months after operation, he still had considable edema. The urine at that time was pale; acid, 1,020, albumen ½%; urea 1.70% with a total of 18.87 gm. The sediment contained many fatty granular renal cells, normal and abnormal blood, fine granular casts of large diameter, with epithelial cells, fat drops and blood adherent; a few hyaline, epithelial and fatty casts. He was discharged to Tewksbury, where he died June 30, 1903, five months after operation. During his stay there he had general edema, a urine loaded with albumen and casts, and cardiac murmurs.

CASE VI. N. D., female, twenty-six years old, had a history of nephritis of six years' standing. An attack of influenza preceded her first symptoms. She entered the hospital first in 1897. The diagnosis of chronic diffuse nephritis was made. She came in again on Jan. 31, 1903. She had had numerous attacks of malaise, muscular weakness, frequent headache, backache, dyspena, epigastric pain, nausea and vomiting. frequent micturition. The urine was pale, slightly acid, 1,012, albumen ¼%, few hyaline and fine granular casts with some fat and renal cells adherent, numerous squamous cells and leucocyte, single and in clumps, many small round cells, rarely a normal blood globule. The twenty-four-hour amount varied considerably up to 54 oz. and the albumen up to ¼ %. The physical examination was, in brief, an enlarged heart with accentuation of the second sounds, edema of the eyelids and extremities and a foul breath. The urine collected by segregation from each kidney gave similar results.

As there had been no material gain she was operated upon on March 7, 1903, by Drs. Thorndike and Faulkner. The kidneys were four inches long, contracted anteroposteriorly. Decapsulation left a granular surface which bled but little. The pathological diagnosis from a specimen removed was "chronic glomerulo-nephritis." After operation she steadily failed, had headache and vomiting and a decrease in the total amount of urine secreted and died two days later.

CASE VII. Boy nine and a half years old. He had had measles, diphtheria and typhoid, but not scarlet fever. He entered the Children's Hospital Sept. 11, 1902. His symptoms were nausea, vomiting, dyspnea and edema. The urine was smoky, acid, 1,010, albumen ¼ to ½%. The sediment contained many hyaline and granular casts, with blood and renal cells adherent, few fatty and epithelial casts, many round cells, often fatty, leucocytes free and in clumps, a few decolorized red corpuscles and a few squamous epithelial cells, considerable free fat. The twenty-four-hour amount of urine was ordinarily between 400 and 800 cc. and the urea between 5 and 10 gm. He developed considerable edema and ascites which required tapping three times. On Dec. 2 he was transferred to the surgical service with edema of face, back, external genitals and lower extremities. The heart was enlarged and its action irregular. There was evidences of fluid in the pleural cavities and abdomen. The total twenty-four-hour amount of urine was decreasing and the general condition was growing worse.

Jan. 1, 1903, he was operated upon by Dr. Cushing. Anesthesia was produced by nitrous oxide and ether. The kidneys were enlarged, the capsules not adherent. The denuded surface was matted with yellowish white areas, alternating with injected ones. The cortex was quite friable. No cicatricial depressions of the surface were noted. After the operation the headache and nausea disappeared and the edema began to diminish, and by the eighth or ninth day had disappeared entirely except in the legs. The twenty-four-hour amount of

urine increased to 1,170 cc. and the urea on the seventh day was 11.20 gm. The albumen and sediment were less. After the eighth or ninth day the boy began to grow worse, the temperature was elevated, the wounds were opened by the returning edema, the amount of urine and of urea both diminished and the nausea and vomiting recurred. The boy died Jan. 19, nineteen days after operation, with the symptoms of acute pulmonary edema and cardiac exhaustion.

This makes a series of seven cases.[1] None of them can be said to have been cured, as not one of them has a urine free from albumen. One is, however, without subjective symptoms or a urinary sediment a year and four months after operation, and another seven months after operation, though lost sight of since. Of the remaining five, one, somewhat improved, died six months after operation, of tuberculosis. The remaining four died, unimproved, two and nineteen days and one and three months after operation. Looking over these cases one cannot find any apparent reason, either in etiology, duration of the disease, or findings at the operation, why one patient should survive and be greatly benefited, another survive but the progress of the disease be not arrested, and a third die within a few days.

Such cases as the first one reported are certainly brilliant, and possibly such a one differs in some respect at present undiscovered from those that die.

In regard to the case who has still albumen but no casts in the urine, Edebohls says that the albumen may presist for some time after the casts have entirely disappeard in the cases that are eventually to be cured.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D.

GENITO-URINARY TUBERCULOSIS.

Baumgarten[1] says that he is unable to start a tuberculous process in a testicle by injecting tuberculous material into the urethra, although he could infect the deep urethra, prostate, and bladder in this way. He claims that tubercle bacilli never travel against the current of either secretory or excretory fluids, and explains his results in this way.

Kraemer[2] agrees with Baumgarten and so asserts that tuberculous infection of the testicle is impossible from coitus.

Delli Santi,[3] on the other hand, was able to start tuberculous epididymitis in dogs by introducing bacilli into the urethra. He thinks this investigation establishes the possibility of contagion from tuberculous lesions in the female genital organs.

Hausen[4] found it impossible to induce hematogenic tuberculosis of the genito-urinary organs in his experiments on rabbits, even when he made subcutaneous injections of tubercle bacilli coincident with the introduction of bacilli into the blood.

Bürgner[5] reports success with his method of high castration for tuberculosis. He frees the vas as high up as possible and then pulls on it until it breaks. In this way about 4-5 cm. can usually be removed. When he thinks that seminal vesicle and prostate are also involved, he injects a 10% glycerine solution of iodoform upward through the vas as a preliminary step to castration.

INOSCOPY.

E. J. Masselin[6] agrees with Jousset that inoscopy reveals tubercle bacilli in organic fluids in which they are difficult or impossible to demonstrate by other means. The bacteria become entangled in the fibrin of organic fluids, and by disolving of the fibrin with a pepsin digestive mixture the organisms can be set free and then are readily centrifuged for examination.

OPERATIVE TREATMENT OF CHRONIC BRIGHT'S DISEASE.

R. Guiteras[7] gives a carefully prepared and extensive tabulation of reported cases and concludes as follows:

(1) Chronic nephritis should not be operated on until medical treatment has proved of no avail.

(2) The time for operation is when it is noticed that the process is advancing rapidly and we fear that the heart will soon become overtaxed.

(3) The operation for chronic Bright's disease which has proved least dangerous and which has shown the best results, is nephropexy performed on a single movable kidney.

(4) The most unfavorable cases for operation are those of diffuse nephritis.

(5) Cases of general anasarca with bad heart action should not be operated on; if the heart action is good an operation performed as a *dernier ressort* may give the patients a few extra months of life, provided they survive it.

(6) Where there has been a marked destructive process in the kidneys, as a result of a nephritis, the operation may relieve them for a number of weeks or months, but they generally fail again and die when the new capsule begins to contract.

HYPERNEPHROMA.

P. Thorndike and J. H. Cunningham, Jr.[8] report three cases of these tumors of adrenal origin with pathological reports. The tumors cannot be classified as carcomata, carcinomata,

[1] Cases I, II, III, IV, V, were also reported in Boston Med. and Surg. Journ., Aug. 13, 1903; Case VII was also reported in Archiv. of Pediat., August, 1903.

[1] Archiv. f. Klin. Chir., 1901, Band. lxiii.
[2] Deut. Zeit. f. Chir., Leipsic, lxix., No. 2-4.
[3] Riforma Medica, Palermo, xix, No. 28.
[4] Annales d. Mal. d. Org. Genito-Urinaires, Paris, 1904, p. 408.
[5] Beitrage z. Klin. Chir., Tübingen, 1903, p. 342.
[6] Presse Medicale, Paris, 1903, No. 75.
[7] N. Y. Medical Journal, Nov. 14, 1903.
[8] Boston Medical and Surgical Journal, Dec. 3, 1903.

etc., as they are of adrenal origin and do not conform to any one class of growth. They grow rapidly, are usually malignant (though occasionally benign) and metastases form through the blood current, most frequently in the lungs, liver and bones. Plates accompany the article, illustrating characteristic points in gross and microscopic pathology. The affected kidney is generally large, with a nodular surface, but retains the general outline of the organ. On section the tumor tissue is yellowish, with a firm and distinct stroma. Some nodules show areas of hemorrhage and degeneration.

E. Bohler [9] collected 39 cases of hypernephroma. Of the 36 cases in which the age was determined only 4 were under forty years, 5 were forty to fifty years, 24 were fifty to seventy years, 3 were over seventy years. The disease occurred 19 times in men and 18 in women. Right kidney was affected in 16 cases and left in 20 cases.

PERIRENAL FAT.

W. W. Keen [10] says there are two distinct layers of fat surrounding the kidney. One he calls the transversalis layer and the other the proper perinepheric fat. These layers are separated by connective tissue and there is a very distinct interval between them. Walkow and Deletzin in 1899, Gerota in 1895, and Zuckerkandl in 1883, describe a similar condition.

THE PATHOGENESIS AND PATHOLOGICAL ANATOMY OF ENLARGED PROSTATE.

L. R. G. Crandon [11] gives the results of a study of 37 prostates, 12 of which were enlarged, 24 normal in size and 1 small. He discusses his findings with great care and draws conclusions as follows:

(1) The underlying cause of the usual form of prostatic enlargement and of certain forms of prostatic atrophy is a slow formation of new connective tissue due to infection, or to infection aggravating a senile degenerative process.

(2) The gonococcus is probably most often the specific infection.

(3) Neoplasms, fibronyomata and adenomata occur, but may be called rare.

THE PROSTATIC SECRETION.

Stern [12] analyses this secretion and mentions a special enzyme which it contains, and says: It is as yet impossible to demonstrate the importance of this fluid. He assumes that it is important in overcoming the quiescence of spermatozoa and also in promoting a state of osmosis essential to fecundation.

GONORRHEAL EPIDIDYMITIS.

Baermann [13] asserts that epididymitis occuring during a gonorrheal urethritis is due to local invasion of gonococci which can be demonstrated in fluid drawn off by puncture and that sometimes it is possible to find gonococci persisting for years in the relics of an old epididymitis.

[9] Wien. Klin. Woch., 1903, 19 and 20.
[10] American Medicine, Philadelphia, Jan. 31, and Feb. 7, 1903.
[11] Annals of Surgery, December, 1902.
[12] American Journal of the Medical Sciences, Philadelphia, August, 1903.
[13] Deutsche Med. Woch. Berlin, xxix, No. 40.

NEW OPERATIONS.

A. D. Bevan [14] describes an operation for undescended testicle, and illustrates the steps of the procedure with a series of cuts. He believes that all testes which can be palpated should be transplanted into the scrotum. He operates through an incision made over the inguinal canal, but not carried down over the cord and into the scrotum. He opens the peritoneum, ties it off as in hernia operations, making a tunica for the testis out of the vaginal portion of peritoneum, and then frees the cord from all its adhesions so carefully that it can be dropped into the scrotal pocket and lie there with no tension upon it.

E. Reynolds [15] describes an operation of nephroureterectomy which he performs. He operates through a four-inch incision, and is able by posture to obtain gravity dilatation of the wound so that the wound cavity, if the posture has been well taken, " opens widely and can be inspected throughout as easily as if it were a surface wound."

(To be continued.)

[14] Journal American Medical Association, Sept. 13, 1903.
[15] Bulletin Free Hospital for Women. Boston. Vol. i, No. 2, June, 1903.

Reports of Societies.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING, HELD AT THE PIEDMONT HOTEL, ATLANTA, GA., DEC. 15, 16 AND 17, 1903.

(Continued from No. 3. p. 72.)

SPURIOUS DYSMENORRHEA.

DR. HENRY T. BYFORD, Chicago, made a plea for a more rational treatment of dysmenorrhea. After naming twenty-five varieties that had been mentioned in textbooks, the author called attention to their disappearance therefrom. Many supposed cases were spurious in character. These had been perpetuated by the physician and cured by the quack.

The absurdity of the nasal cure was emphasized and the cures referred to as spurious. Instances of menstruation in the male were quoted.

The trend of the paper was to condemn writers for bringing the symptom into the foreground when it should be kept in the background, and for wasting their own time and that of their readers in ridiculous refinements and speculation.

MEMORIAL ADDRESS ON DR. W. E. B. DAVIS.

DR. RICHARD DOUGLAS, Nashville, Tenn., spoke impressively of the work that had been done by Dr. Davis, and pointed out in a masterly way the distinguishing characteristics of the deceased.

DIAGNOSIS AND TREATMENT OF CONGENITAL MISPLACEMENT OF THE HIP IN INFANCY.

DR. ALBERT H. FREIBERG, Cincinnati, Ohio, had been able to ascertain that in several cases children with congenital misplacement of the hip had been late in walking. It was a common experience in mild grades of rachitis that children were late in walking. The usual age of sixteen months was passed by, and the rachitic child not only failed to walk, but was usually also unwilling to stand. The author had been able to ascertain in several cases, and to observe in one, that children with congenital luxation stood readily at the usual age for walking, and especially if allowed to support themselves by holding on to some object. It was only when independent effort at locomotion was urged that the child showed its timidty and refused to make the attempt as a normal child would. This period was gone through by every normal child, but in some cases its long continuance might be attributed to congenital luxation. The length of this period in luxation cases varied greatly, but in every case was finally determined by the child's learning to walk with more or less limping, at which time the diagnosis was usually made and was of no further interest in this connection. In some few instances mothers observed these things and possibly also that the apparent breadth of pelvis and perineum was unusually great. It was therefore urged that in the presence of any of these signs which had been referred to, attention be paid to the possibility of congenital luxation, and that in the event of any doubt the x-ray be resorted to as a final means of precision.

Experience had abundantly shown the feasibility of operative procedure after the age of one year, and that the results amply justified the great additional care which was necessary to prevent the dressings from becoming soiled in so young a patient.

THE PROGRESS OF URETERAL SURGERY.

DR. J. WESLEY BOVEE, Washington, D. C., President of the Association, selected this title for his presidential address. After referring to the deaths of Drs. W. E. B. Davis, George J. Engelmann and J. McFadden Gaston, he confined his remarks to the surgery of the ureter, giving its history and present status.

The treatment of ureteral calculi first claimed attention since the diagnosis and treatment of this condition were very much studied at the present time. The use of the x-ray was the simplest procedure known for purposes of diagnosis, and were it accessible at all times, and completely reliable, no other method would be comparatively valuable. Unfortunately, such conditions as calculous anuria might render a patient in a secluded place so ill that this method of investigation was necessarily precluded. Moreover, calculi might be of sufficient size to block the ureter and give no shadow in the radiograph. For this reason especially other plans of examination should be employed, although the necessity of constant manipulation of the ureter was a *sine qua non* to dexterity in treating other conditions of this structure. Palpation would ever have its important position. Exploration was an important method in such investigations. Tubular calculi might escape discovery by this plan. The wax-tipped bougie, suggested and used by Kelly, was especially sensitive, and no doubt if it touched a calculus it would receive a telltale impression.

In the treatment of ureteral calculi the proper plan was extraperitoneal uretero-lithotomy, as infective urine was usually associated with this condition, and easily produced peritonitis if permitted to come in contact with the peritoneum. If pus was not present, the establishment of uretero-cutaneous fistula would seldom be necessary, though careful drainage of the wound would be advisable. This rule applied to every part of the duct. He was firmly convinced the ureteral wound should be made longitudinally whenever possible, and sutured after lithotomy. If much necrosis of the ureter was manifest, as had often resulted from the impaction of a calculus, each case should be treated according to the judgment of the surgeon, and such modifications as resection or exsection, with uretero-ureteral anastomosis or uretero-cystostomy might rarely be required. Frequently pyonephrosis accompanied calculous ureteritis. Incision and drainage, and probably nephrolithotomy would be needed in addition. The routes employed depended upon the location of the calculus, the bladder, the vagina, or loin being selected. He could only endorse the rectal route, as employed by Ceci, when examination revealed a calculus ulcerating into the rectum or threatening to do so.

For ureteral fistula nothing need be done unless obstruction of the duct below the fistulous opening existed. In such a case the caliber of the canal must be restored. Usually the fistula would then close spontaneously, although so much cicatricial tissue might be deposited about the opening as to prevent closure. Suture, or perhaps resection, might be required in that case.

Dr. Bovee referred to subcutaneous injury of the ureter, saying that no treatment was advisable unless evidence of extravasation of urine or of ureteral obstruction existed. For partial division of the ureter suturing should be applicable. Abnormal ureteral terminations of congenital origin might be corrected by uretero-cystostomy, usually by the vaginal route. Fortunately, in these cases the ureter was abnormally long, and therefore the difficulty was much less than was the same operation for other indications. The ureter might be removed in whole or in part for tumors, tuberculosis, and malignant disease. In 1899 he was able to collect from literature about twenty-four cases of partial or complete ureterectomy. Now the number had increased to nearly one hundred. In complete ureterectomy or nephro-ureterectomy in women probably the loin and vaginal incisions

constituted the best plan. In his last case he separated the lower two inches through a vaginal incision, and then separated and withdrew the kidney and ureter by the loin route. This he believed to be the best of all.

For ureteritis the treatment had been largely of irrigation and topical applications. He had been disappointed in this work, and had grave doubts of its being the best. Probably the violence done to the lower part of the ureter by this instrumentation counterbalanced the benefits. He had had a few cases of trigonitis that had come to him after ureteral irrigations were said to have been made. He had, in consequence, been led to speculate as to whether a non-alcoholic, non-nitrogenous diet, with diuretics and rest in bed, might not be superior treatment for simple ureteritis.

PUS COLLECTIONS IN THE PELVIS.

DR. C. N. CHAVIGNY, New Orleans, La., discussed this subject, in which he reported three cases.

THE TECHNIQUE OF THE VAGINAL METHOD.

DR. J. RIDDLE GOFFE, New York, said in his own hands the scope of the operation, namely, the conditions to which the vaginal method was applicable, was steadily widening. It was no longer confined, on the one hand, to simple puncture and drainage, nor limited, on the other, to the radical operation of hysterectomy. All the intermediate procedures that were called for by the multifarious pathological conditions found in a woman's pelvis found their most direct route through the vagina.

There were two vaginal incisions through which the pelvic cavity could be reached; one, posterior to the cervix into Douglas' pouch, and the other anterior to the cervix, separating the bladder from the uterus and opening up to view and touch the entire contents of the pelvis. The latter was the one which afforded the greater facilities for operative procedures, and the one which he depended upon almost exclusively. The posterior incision was frequently used in connection with it, to afford additional opportunity for the purpose simply of securing drainage and in some cases for manipulation. The procedure was described.

The simplest application of the vaginal method, and the one that probably commended itself most universally to the profession, was incision and drainage of pelvic abscesses.

The author's cases had embraced every variety of disease from simple retroversion, with or without adhesions, to prolapsed and cystic ovaries, unilateral and bilateral salpingitis, ectopic gestation, fibroid tumors of the uterus, and dermoid cysts. The method lent itself to every form of conservative work upon the uterus and its appendages that had been suggested in the trend of recent modern gynecology. The successful application of it required patience, experience and skill, but when once the profession had been convinced of its superiority, he believed it would steadily and rapidly grow in favor and become the accepted method for the man who practiced the specialty of gynecology.

TUBERCULAR OSTITIS OF THE KNEE.

DR. A. R. SHANDS, Washington, D. C., said that the management of a case of white swelling could be embraced in the terms immobilization and protection in any and all stages of disease. The indication was to preserve the function of the joint as far as possible, to arrest the progress of the disease, to prevent and correct deformities. Immobilization and protection with the best hygienic surroundings and the best tonic treatment appropriate to the individual case would best accomplish the indication just mentioned. If the diagnosis was made early and this line of treatment faithfully carried out, a large percentage of cases would yield very favorable results, many recovering with little or no disability. When it became necessary to incise and drain a joint, it should be done thoroughly and good drainage should be kept up just as long as there was any discharge. When the infection of the joint was due to an ostitis that was near the surface of the ends of the bone, often the diseased bone sloughed away, and when it could be easily located and curetted, most excellent results were obtained. A case was cited in point.

Excision of the knee should never be done in children except in extreme cases, and even then the author believed that amputation would be best, for an artificial leg was more useful than such a leg as a child would have after excision.

BILATERAL DIFFUSE VIRGINAL HYPERTROPHY OF THE BREASTS.

DR. GEO. BEN JOHNSON, Richmond, Va., reported the case of a white girl, aged sixteen, four feet, ten inches high, weighing one hundred and twelve pounds, who had this disease. The breasts hung from the chest wall at about the fourth rib and reached to a point just above the symphysis pubis. The nipple was flattened and stretched. The substance was soft and of similar consistence to that of a well-nourished multipara's breast; the glandular masses scattered throughout were distinctly palpable. The breasts were almost symmetrical, with the exception of a lobular division at the base of the left breast of the same general structure as the main tumor. Two small scars near the right nipple indicated the site of former abscesses. The anteroposterior circumference of the left breast was 19¼ inches; the anteroposterior circumference of the right breast was 21¼ inches; the superior inferior circumference of the left breast was 32 inches; and of the right, 31 inches. Operation was performed under ether anesthesia, and occupied thirty-five minutes, the left breast being removed first, followed immediately by the removal of the right. The breast was held above the field of operation, and the amputation carried on as rapidly as the vessels could be caught by assistants. Healing was by primary intention, and the patient was up and about in six days.

DR. GEORGE H. NOBLE, Atlanta, Ga., reported a case of excision of the psoas magnus muscle for sarcoma.

THE DIFFERENTIAL DIAGNOSIS OF SYPHILIS AND CANCER OF THE VULVA.

DR. BARTON COOKE HIRST, Philadelphia, read a paper on this subject. After referring to the differential diagnosis of these two affections, he reported the case of a woman, twenty-eight years of age, single, who had never been pregnant. She denied ever having led an immoral life, and the possibility of venereal infection. Ten years ago she was operated on for hemorrhage and fissure *in ano*. The wound of the operation did not heal properly. More than a year ago the patient noticed an ulcerated condition of the vulva, and a short time afterward incontinence of feces, followed soon by incontinence of urine. For two years past there had been amenorrhea. On making a specular and digital examination a fistula between the fossa navicularis and the rectum was discovered. The whole urethra was gone; there were three little tubercles at the neck of the bladder, these being all that was left of it. The vagina above the neck of the bladder was perfectly healthy. The cervix was normal except that it was atrophic, as was the whole uterus. The case, at first sight, looked like an inoperable epithelioma of the vulva. It was so pronounced by one of the most experienced dermatologists in Philadelphia. But there was none of that extensive infiltration and elevation of the skin surface around the edges of the ulceration, such as was seen in an example of extensive epithelioma of the vulva, considerably advanced, but not yet inoperable. Moreover, numerous pieces of tissue from different places in the ulcerated area showed nothing characteristic of cancer. There was everywhere the most extensive round-cell infiltration and necrosis of tissue. The microscopic study, as well as the macroscopic appearance suggested syphilis in the ulcerated gummatous form as the most likely possibility, epithelioma being excluded.

Accordingly, the patient was put on specific treatment in spite of her negative history, and the entire absence anywhere upon her body of signs indicating an old syphilitic infection. The treatment was given up within a week, as the patient was severely ptyalized and could not endure large doses of potassium iodide. Lupus next suggested itself. On two separate occasions, under anesthesia, twelve or fifteen pieces of diseased tissue were removed for microscopical examination. No tubercles nor bacilli could be discovered anywhere. Inoculations in animals were negative. The urine contained no tubercle bacilli. The bladder itself was healthy. There was a response to the tuberculin test, but the woman had a patch of consolidation in the apex of one lung. Meanwhile the patient was given x-ray treatments every other day for eight to ten minutes. Within three weeks the external ulceration was healed. The local appearance at that time showed great improvement. Two weeks later the rectovaginal fistula spontaneously closed under the continuance of the x-ray applications. Nothing remained of the original disease except the absence of the urethra and an elephantiasic condition of the labia majora. The former had been corrected by urethroplasty. The speaker had not yet joined the new urethra to the opening in the bladder, so that the establishment of continence of urine was still doubtful but he was quite hopeful of making the patient eventually entirely comfortable.

(To be continued.)

Recent Literature.

Atlas of External Diseases of the Eye. By Prof. O. HAAB. Second edition, revised. Edited by G. E. DE SCHWEINITZ, A.M., M.D. W. B. Saunders & Co. Philadelphia, New York, London. 1903.

This companion book to Haab's "Atlas of Ophthalmoscopy" which is now passing through its second edition has been thoroughly revised by the author and re-edited with certain additions by Dr. De Schweinitz. Although it has not been attempted in the translation to follow the original text with undue accuracy it has been nevertheless the desire of the editor to convey with faithfulness the real meaning of the author. With few exceptions the excellent series of plates which illustrates the text has been painted from nature and in the chromo-lithographic reproduction difficulties in color have been surmounted with cleverness and ingenuity. The brief treatise on ocular pathology and treatment taken in connection with the series of plates and the clinical history which accompanies each of them, form a manual which will be appreciated alike by the practicing physician and student.

Wathen's Epitome of Histology. A Manual for Students and Physicians. By JOHN R. WATHEN, A.M., M.D., Professor of Surgery, etc., formerly Professor of Histology and Pathology, Kentucky School of Medicine, Louisville, Ky. 12mo., 220 pages, 114 illustrations. Cloth. Lea Brothers & Co., Publishers. Philadelphia and New York. 1903.

This little book is intended to assist a student to pass an examination in histology without really knowing the subject. In case of an examination in which the test is the recitation by the student of a certain number of words learned more or less by rote the book might help — but it is to be hoped that there are no such examinations still extant. The volume contains a large number of erroneous statements, but is clearly and succinctly written. The illustrations, which are almost entirely borrowed from various textbooks by well-known histologists are, though badly printed, essentially good. We have noted nothing else in the book deserving praise.

Clinical Talks on Surgery. By JAMES G. MUMFORD, M.D., Assistant Visiting Surgeon to the Massachusetts General Hospital and Instructor in Surgery, Harvard University Medical School. The Old Corner Book Store. Boston. 1903.

Under the above title is presented in book form the methods of clinical instruction of the writer. It represents the results of ten years' experience as a teacher of minor surgery, and the subjects discussed are the "common-place" ones usually briefly treated in the ordinary textbook.

The book is arranged as ten lectures. I. Examination and Study of Cases. II. Incised Wounds. III. Simple Fractures. IV. Lacerated Wounds. V. Compound Fractures. VI. Granulating Wounds and Varicose Ulcers. VII. Felon, Whitlow, Paronychia, Palmar Abcess. VIII. Boils, Carbuncles. IX. Bunions, Ingrowing Nails, Corns and Warts. X. Massage.

It is a very interesting, well-written little book of 115 pages, not illustrated except by its graphic phraseology, full of practical suggestions and is a forcible exposition of the best principles not only of teaching, but also of the theory and practice of surgery. The emphasis is not all placed on operative technique, and the student is not impressed with the idea that the only knowledge necessary for a surgeon is the knowledge of how to operate. It embodies the principles of the best methods of clinical instruction.

We recommend it to the student, for it is full of well-told valuable information. We recommend it to the graduate in medicine for he will read it with interest and, unless he is a "master" in his profession, also with profit.

A Textbook of Diseases of Women. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic, and the Philadelphia Hospitals. 683 pages. 655 illustrations. W. B. Saunders & Co. 1903.

This book is a companion volume to the author's "Textbook of Obstetrics" and embodies an experience of twenty years.

The author adopts the anatomical rather than the pathological classification of the diseases of women. Instead of placing all of the normal anatomy at the beginning of the volume, each chapter is prefaced by a short description of the anatomy of the part treated. This arrangement adds much to the reader's convenience and also to clearness. A chapter on "The Detailed Technic of Gynecic Surgery" is found properly at the end of the book instead of, as commonly, at the beginning. A good feature is an admirable article on coccygodynia, containing a plate showing the injuries and diseases of the cocygeal joints.

The chapter on "Diseases of the Urinary Tract" is hardly up to the high standard of the rest of the work. Here the clearness and conciseness so noticeable elsewhere are lacking. It is doubtful whether a majority of gynecologists would endorse the following statement, page 527: —"No cystoscope is satisfactory that does not carry a light at its distal or intra-vesical end. Hence the cylindrical specula of Pawlik and Kelly, through which the light must be reflected from the exterior, are awkward and inconvenient." Two different electric cystoscopes and an electric urethroscope, also two urinary segregators are advised for the purpose of making diagnosis and treatment.

The illustrations are very numerous, are for the most part original, and are particularly well executed.

It is to be noted that the figures of the injuries and erosions of the cervix in black and white are close after nature and convey a far better idea of these conditions than do the faultily colored plates which are commonly employed. The illustrations of the different forms of mucous polyps of the cervix are remarkably true to life.

The author has given especial attention to diagnosis and treatment throughout the book and has produced a practical treatise which should be of the greatest value to the student, general practitioner and specialist.

A Textbook of Diseases of the Eye. By G. E. De SCHWEINITZ, A.M., M.D. Octavo, pp. 773, 230 text-illustrations and 6 chromo-lithographic plates. Fourth edition. W. B. Saunders & Co. Philadelphia and London. 1903.

That Dr. De Schweinitz's Handbook of Ophthalmic Practice has reached its fourth edition is sufficient evidence of a deserved popularity, and although former editions have been favorably commented upon by this JOURNAL it seems proper at this time to call attention to the fact that the new edition has been "revised, enlarged and entirely reset" and that it will be found to contain many new chapters upon subjects of current interest. A large number of the comparatively newer therapeutic agents are mentioned in connection with descriptions of the diseases in which they are indicated and many of the new text-illustrations and several very finely executed examples of the chromo-lithographic art will be found to be both attractive and interesting.

A Handbook of the Diseases of the Eye. By HENRY R. SWANZY, A.M., M.B., F.R.C.S.I. Eighth edition. P. Blakiston's Son & Co. Philadelphia. 1903.

This Textbook on Diseases of the Eye is passing through its eighth edition and outwardly, at all events, very closely resembles its predecessor, the seventh. While it has gained in illustrations to the number of three it has suffered abridgement in pages to the number of twenty-seven and therefore remains the same compact little volume. Fresh matter has been introduced into some of its chapters and much that is obsolete has been omitted and in this respect the book is improved, but on the other hand an ill-advised conservatism which prevents a too ready acceptance of some of the newer therapeutic agents has doubtless caused the omission of protargol and the more recent argyrol from the very excellent index which accompanies this work.

Textbook of Histology. By DR. PHILIP STÖHR. Fifth American from the tenth German edition. Edited with additions by DR. ALFRED SCHAPER, with 353 illustrations, 850 pp., xvi, 485. Philadelphia: P. Blakiston's Son & Co. 1903.

This admirable book appears in its fifth edition with many minor improvements, bringing the subject-matter up to date. There are also fifty new illustrations and some of the older figures have been withdrawn. The work deserves the great favor it has enjoyed, and certainly occupies the first place among treatises on histology in the English language. It may be recommended not only for students, but as a reference book for practitioners, for whose use it is adapted by the brevity and remarkable clearness of the author's statements. The work is authoritative and singularly free from errors. We hope that in the next edition the author will revise the accounts of spermatogenesis and of the leucocytes, which are at present somewhat inadequate and that he will add descriptions of the parathyroids and of the sinusoids, a class of blood vessels only recently recognized, though of great anatomical importance. The volume is well made, and the publishers have taken much care with the printing of the illustrations, which are beautiful.

An American Textbook of Surgery for Practitioners and Students. By PHINEAS S. CONNER, M.D., FREDERIC S. DENNIS, M.D., WILLIAM W. KEEN, M.D., CHARLES B. NANCREDE, M. D., ROSWELL PARK, M.D., LEWIS S. PILCHER, M.D., NICHOLAS SENN, M.D., FRANCIS J. SHEPHERD, M.D., LEWIS A. STIMSON, M.D., J. COLLINS WARREN, M.D., and J. WILLIAM WHITE, M.D. Edited by WILLIAM W. KEEN, M.D., LL.D., F.R.C.S., (Hon.) and J. WILLIAM WHITE, M.D., PH.D., Fourth edition, thoroughly revised and enlarged. Philadelphia, New York and London; W. B. Saunders & Co. 1903.

We are very glad indeed to see the *American Textbook of Surgery* appear in its fourth edition. It was in danger of being superseded by other books. A great deal of progress has been made in surgery since the first edition of this book, but so far as we can see, the editors have incorporated into this edition all the accepted knowledge. Several new chapters have been added. They are, Military Surgery, Naval Surgery, Tropical Surgery, Examination of the Blood, Immunity and Pancreas. The subject of Acute Osteomyelitis has received special attention in this edition. The treatment of joint disease is not so well considered as it should be. The chapter does not give a clear perspective as to the value of protection and fixation in joint disease. Many of the chapters have been rewritten, notably the chapters on tumors, nerves, joints, etc. In this edition the publishers have used a thinner and a better paper, they have used a smaller type for the new chapters, and yet the book has increased in bulk to 1333 pages. The *American Textbook of Surgery* may be accepted as one of the best textbooks on the subject.

Surgical Diseases of the Abdomen; with special reference to Diagnosis. By RICHARD DOUGLAS, M.D., formerly Professor of Gynecology and Abdominal Surgery, Medical Department, Vanderbilt University, Nashville; Ex-President of the Southern Surgical and Gynecological Association; Fellow of American Association of Obstetricians and Gynecologists; Member of the British Gynecological Association, etc. Illustrated by 20 full-page plates. Philadelphia: P. Blakiston's Son & Co., 1612 Walnut Street. 1903.

This is a large book. Dr. Douglas has been a worker in the special field of abdominal surgery for the past eighteen years and this book is the result of much systematic study on his part and he has relied on his clinical experience to aid him in the choice of subjects. The description of operative technic is not elaborated in this book. The writer has considered it sufficient to indicate the proper surgical procedure and discusses the operative treatment and the after management of abdominal cases. The book is very complete and appended to each subject is an extensive although discriminating bibliography, so that the reader may turn for further information to the original source. The book is very well illustrated, but the paper and printing are not entirely satisfactory. We can recommend the book to any surgeon who is doing abdominal surgery, for it is a capital reference book. Its practical value lies in the fact that the author has had a very large experience and has also a very complete knowledge of the literature of the subject. It is clear, concise and well written. The subject of differential diagnosis is very fully considered.

Nurses' Guide to Surgical Bandaging and Dressings. By WM. JOHNSON SMITH, F. R. C. S., Principal Medical Officer, Seaman's Hospital, Greenwich. Philadelphia: J. B. Lippincott Co. London: The Scientific Press, Limited.

This "vest-pocket" volume ($3\frac{3}{4}$ x $4\frac{1}{4}$ x $\frac{1}{2}$ inches) of 161 pages, bound in brilliant cardinal-red cloth and illustrated by 70 cuts, treats of the details of the aseptic and antiseptic treatment of wounds and other common surgical lesions resulting from traumatism or infection, and of bandaging, splints and apparatus. The data contained as indicated by its title is arranged for the use of nurses. The book is interesting as a review of the subjects treated, or for comparison of the detail of instruction for nurses at Greenwich with that of other hospitals; but as a textbook for the instruction of nurses it deals with the subjects discussed much too cursorily and concisely to be of much value.

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TRYPANOSOMA AND TRYPANOSOMIASIS.

JUDGING from recent investigations, one of the new and comparatively unexplored fields into which medicine is destined to penetrate in the immediate future is that of the protozoa. Evidence is very rapidly accumulating to show that these organisms may produce or be closely associated with certain of the common infectious diseases. In fact, it has long been known that certain types of protozoa are capable of producing disease of great malignancy in animals. In this latter class is to be included an important genus known as Trypanosoma, which in its many varieties produces a considerable number of violent animal infections. In general the disease produced by this organism occurs in epidemic forms in tropical countries, usually with greater severity during the rainy season. There is a period of incubation, followed by fever of varying type. Trypanosoma are found in the circulating blood. The disease progresses with anemia, emaciation, catarrhal conditions, at times falling of hair, and subcutaneous edema, often with ultimate paralysis. The mortality among animals of economic importance is about one hundred per cent. The pathological anatomy of the condition shows the effects of anemia, alterations in the spleen, lymphatic hyperplasia, various infiltrations, enlarged spleen, and fluid in serous cavities. With the clinical course and pathological anatomy the disease presents a perfectly distinct and characteristic type.

The recently published report of the *Biological Laboratory of the Department of the Interior* discusses in great detail this general subject, with special reference to surra as observed in the Philippine Islands. The publication is monographic in its scope, and should prove a valuable addition from an eminently practical, as well as scientific, standpoint of our knowledge of this prominent tropical disease. As in most subjects in which sporadic work has been done for a number of years by various investigators, a somewhat extreme degree of confusion exists in the nomenclature and classification; for example, upwards of eighty names have from time to time been used in different parts of the world to designate the condition of trypanosomiasis.

The first description of the disease appears to date from 1842, from observations made in South America. In 1860 an epidemic which killed thousands of horses occurred in Brazil and Paraguay. In 1858 Livingstone wrote of the tsétsé fly disease, in Africa, which had long been recognized by the natives. In 1880 Evans brought surra into prominence as studied among the natives of India. The loss of animals in India, Africa and South America amounts to many millions of dollars annually. Java and the Philippines have become infected, as well as the Island of Mauritius, the latter since the South African war. In 1902 Manson and others reported cases of the disease in human beings. Smith and Kinyoun published the first report of the infection in the Philippines in 1901, and the conclusion has been reached that the disease undoubtedly was introduced at that time. Curry accurately described the parasite in 1902. Since then the spread of the disease has been phenomenal, and at the present time areas throughout the entire group of islands are infected.

The life cycle of the organism has not yet been worked out with entire satisfaction, but numerous observations have been made which undoubtedly will lead to definite conclusions in the near future. In general the species of Trypanosoma are similar. The body has one chief flagellum and is wound more or less in the form of a spiral, one angle being provided with an undulating membrane. The details of form, however, vary greatly in the same and different species. Limitation of space does not permit us to enter into details regarding the characteristics, the multiplication, the agglutination and the habits in general of these organisms as observed under natural or experimental conditions. For such details we refer our readers to the original report.

Some of the conclusions which the authors of this piece of work, Dr. W. E. Musgrave and Mr. M.

T. Clegg, reached are as follows: The term trypanosomiasis should be used to designate all varieties of the infection as found in different animals; vernacular names, with the exception of surra, should be discarded in most cases. The complete life cycle of the organism is as yet unknown, but it is supposed to occur entirely within the animal economy. Modes of transmission and infection are probably through wounded surfaces in which biting insects, flies and fleas, are the principal agents. The animals serving as hosts for the perpetuation of the disease during the dry season vary in different countries. It is altogether to be doubted whether infection of pastures and water, and the transmission of Trypanosoma through sound mucous membrane is possible. A clinical study of various diseases, among which surra, nagana, dourine and mal de caderas may be mentioned, formerly supposed to be distinct, shows that there is nothing sufficient to differentiate them. The morphological differences of the parasites producing them is not sufficient for classification. Hitherto prophylactic or curative serum has failed to give results, but some hope is entertained from this method of treatment in the future.

Following close upon this exhaustive research is a paper by Novy and McNeal, in the recently published *Journal of Infectious Diseases*, on the cultivation of Trypanosoma brucei. These investigators were able to separate culturally this variety from another and to make various observations of scientific importance. They hope, and the hope is certainly justified, that diseases due to these organisms may soon be subjected to experimental studies, and so indirectly lead to a clear insight into the course of protozoal diseases in general. They are furthermore of the opinion that in spite of present difficulties most of the pathogenic protozoa will soon be cultivated and studied with the same facility as the bacteria.

THE MENSTRUAL FUNCTIONS OF THE MORPHINE HABITUÉ.

Amenorrhea is certainly one of the most constant symptoms of morphinomania in the female and many are the cases which prove conclusively that the menses, which are generally suppressed during the height of the intoxication, make their appearance shortly after a cure of the habit. *A priori*, it would seem difficult that the cachexia of these patients could permit the menstrual function to continue. The nervous system, profoundly depressed, becomes incapable of directing the menstrual function, while the circulatory disturbances, a dilated and weak heart and vascular hypotension, only contribute still more to the general functional wreck of the subject. It would appear that in the first place a dynamic disturbance of a purely vital order is in play, while the anatomical changes arising in the genital organs are simply secondary to a more or less prolonged arrest of the function and to a more advanced intoxication of the system.

Amenorrhea does not necessarily mean that there is an absence of secretion of the ovum, and children have been born of females afflicted by the morphine habit and presenting amenorrhea. On the other hand Levinstein has seen an absolute atrophy of the entire female genital system in a case of morphinomania.

The practitioner should never lose sight of the fact that very often the habit starts from the use of morphine administered during the progress of certain painful affections of the uterus or adnexa. The importance of opium and its derivatives in the treatment of gynecological diseases is well known to all, and it is also proven that as long as the subject is submitted to the constant use of morphine uterine life is momentarily done away with, but it will usually return after the use of the drug has been discontinued.

We know the important part played by the general condition and we also know that all the cachexiæ, such as carcinoma or tuberculosis, are accompanied by a suppression of the menses. It must be admitted, however, that morphine has an elective action upon the glandular structures, on the ovary as on others, such as the breast, salivary glands, the glands of the stomach and intestine. There results, so to say, a sort of inhibitory action, preventing the Graafian follicles from maturing and by reflex action producing a congestion of uterus and ovaries, from which a suppression of ovulation and menstrual flux results.

After a time permanent lesions take place. When an organ atrophies, it loses all its functions and this, as has been said, has been observed in the genital organs of females addicted to the use of morphine.

The reappearance of the menses is considered as a favorable prognostic element as far as the cure of the habit is concerned and apropos of this we would point out an interesting case recorded by Leet, in which a patient after her

cure from the habit had been obtained presented serious nervous symptoms and excitement at each of the menstrual periods. Other such instances have been reported and it consequently is of the greatest importance to note the regularity and progress of the return of the menses, since they indicate that a cure is being effected and also that the patient is not using any deceit.

DIPHTHERIA ANTITOXIN.

WE have received several communications from manufacturers of antitoxin in regard to the statements in the daily press as to the alleged rise in price of anti-diphtheritic serum and the formation of an "antitoxin trust." Chicago seems to be the storm center in regard to this matter.

Accusations against so-called "trusts" are bandied about with extraordinary freedom nowadays. If one desires to give a dog a bad name one immediately calls him a "trust," and enough is said for the satisfaction of the appelant; it is not even necessary to add the adjective wicked, for that seems to be understood in the word "trust."

As to the facts in this matter, they are not easily clear to the disinterested outsider. It seems to be evident that formerly the city of Chicago got its diphtheria antitoxin for much less than the present prices. On the other hand, the manufacturers claim that the serum at present offered on the market is better and stronger, and that the varying scale of discounts and the provision of a device for administration cause that difference to be more apparent than real. The same position is assumed by Eastern manufacturers. We imagine that in this, as in other matters subject to commercial laws, the consumer prefers that open competition between rivals which reduces the price of a product to its lowest terms without regard to the survival of the producer, and the producer prefers some form of combination or agreement which secures a living profit, and if something more handsome so much the better from his point of view. Between the two extremes a happier mean ought to be reached without too much delay, too much friction, and too many hard names — the most opprobious of all of which seems to be the handy term "Trust."

Under existing circumstances it would seem as if Massachusetts had no immediate reason to regret her arrangements for making her own serum.

MEDICAL NOTES.

TYPHOID FEVER AT LEADVILLE, COL. — A very serious epidemic of typhoid is reported from Leadville, Col. About 500 cases of the disease have appeared, and it is believed that the conditions are such that the epidemic will spread. There is also danger that the Arkansas River may become contaminated, which would seriously menace many towns along its banks.

A CENTENARIAN. — It is reported that recently in France a Madame Viguier died at the age of one hundred and seven years. She is said to have lived on milk and dried vegetables, with an occasional small amount of salt pork as a special luxury. French vegetarians are using her as an example of the correctness of their position.

DR. GUY HINSDALE. — At the annual meeting of the Philadelphia Medical Club, held Jan. 16, a loving cup was presented to its retiring secretary, Dr. Guy Hinsdale. Dr. Hinsdale leaves Philadelphia Feb. 1, to take up practice at Hot Springs, Virginia.

DEATH OF AN EXPERIMENTER FROM PLAGUE. — It is reported that the chief of the Bacteriological Laboratory of the Imperial Institute of Experimental Medicine in St. Petersburg has recently died of plague while experimenting with this disease.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Jan. 27, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 46, scarlatina 40, typhoid fever 7, measles 121, smallpox 0.

ANTIVIVISECTION LEGISLATION. — The usual annual petition for the restriction of vivisection is before the Massachusetts Legislature. The bill is said to be essentially the same as that submitted last year and no doubt essentially the same fundamental objections will be brought against its passage.

MEDICAL INSPECTION OF SCHOOLS. — According to the Monthly Bulletin of the Connecticut State Board of Health a recent address by Dr. Lederle brought out the importance of medical inspection of schools. He gave the following incident as the origin of the practice in New York:

A child in a public school was found picking pieces of skin from hands and arm and passing small fragments around to classmates. Some time later all of

these children took scarlet fever, and on investigation it was found that the child had that disease and had been permitted to return to school in the peeling stage, the most dangerous time for the playmates. The incident resulted in the employment of 150 physicians, to visit each public school daily and examine the children. The importance of this step was at once demonstrated. The first year's work showed 108,628 inspections, and 6,839 children excluded for all diseases of an infectious or contagious nature. Later, in 35 schools containing 55,470 pupils, there were found 6,670 cases of contagious diseases of the eyes. During the school year ending June 26, 1903, 71,229 cases of contagious diseases were temporarily suspended from school attendance.

The Decrease of Tuberculosis. — Dr. S. W. Abbott, of the Massachusetts State Board of Health, at a recent address before the American Statistical Association, brought out the important fact that the death rate in New England at the present time is somewhat less than 20 per 10,000 inhabitants, the mortality diminishing from the east coast toward the western portion of the state, and in general the death rate has been less in all New England states. In some a decrease of as much as 50% in the half century. At present fewer deaths occur from this disease among women than among men, which is a reversal of the former rule. Dr. Abbott expresses the hope from these statistics that tuberculosis should be practically eradicated in a comparatively short time.

Overcrowding of Insane Hospitals. — The State Board of Insanity in a portion of its annual report urges again the necessity of providing for the overcrowding of hospitals under its charge. Over 1,700 beds are in use in corridors and day rooms on account of the inadequate facilities of the wards. An added burden has been put upon state institutions also by the law providing for the accommodation at these institutions of the insane inmates of almshouses. It is urged that no time be lost in completing the removal of these patients to the insane hospitals.

Report of the Perkins Institution. — The seventy-second annual report of the trustees of the Perkins Institution for the Blind has been issued as a public document. The somewhat remarkable statement is made that only 18% of all the blind in this state are dependent upon public or private charity. It is maintained that nowhere else in the world, excepting in Saxony, have such results been reached, and that in England, for example, nearly three-fourths of the blind are dependent. In general the financial situation of the institution is satisfactory, but if certain essential improvements in teaching and equipment are to be made, more funds are needed.

New York.

Criticism of Centralization Bill. — A feature of the eleventh annual report on the Insane of the State Charities Aid Association is the severe criticism of what has become known as the Centralization Bill, which provided for the appointment by the State Commission in Lunacy of a treasurer for all the state hospitals for the insane and of a purchasing agent to contract for the supplies for all these institutions. The measure passed both houses of the legislature, but yielding to the universal public sentiment in condemnation of it, the Governor vetoed it. " It was felt," the report says, " that this would completely centralize the financial and business management of the state hospitals, and that, although the vast financial powers already vested in the State Commission of Lunacy were not sufficiently safeguarded, the changes provided for in the bill would remove several of the few remaining restraints upon the exercise of these powers." Regret is expressed at the failure of the legislature to take favorable action on the bill providing for the establishment of a reception hospital for the insane in New York City, by joint action of the state and the city. The establishment of such a psychopathic institution has been urged for years by the Association. It is estimated that accommodations will be needed for 3,300 additional patients in the state hospitals during the coming fiscal year, and the Association recommends that the legislature make provision for at least half that number without delay. A matter of favorable comment in the report is the outings for patients which have been provided by some of the state hospitals. At the Manhattan Hospital on Blackwell's Island, New York, a number of tents were supplied for the patients last summer, and the Rochester Hospital carried out a long-cherished plan by securing a farmhouse on the shore of Lake Ontario, where nearly two hundred patients enjoyed outings.

Pneumonia and its Causes. — At a meeting of the Advisory Board of the Health Department, held Jan. 21, at which among those present were Drs. Janeway, Loomis, Biggs, Derby and Jacobi, an address to the public on " Pneumonia and the Causes Leading up to It," was prepared and given out for publication. The reason for this action is stated as follows: ' The

present increase in pneumonia of various types in New York city is justly a source of solicitude to those having the interest of the public health in charge, for it has now been fully established that a certain proportion of cases of pneumonia are communicable and that by proper care their spread may be prevented." Rerefence having been made to predisposing causes, the manner in which the germs, the immediate excitants of the disease are usually conveyed is spoken of. After urging the importance of a rigorous enforcement of the Department's regulations for the suppression of spitting in unsuitable places, the address goes on to say: " It is furthermore most important that in the cleaning of private houses and all public conveyances and places of assembly the methods adopted should be such as will remove, and not simply stir up, the dust, which when contaminated may incite in susceptible persons some form of acute pneumonia, as well as tuberculosis and the more common colds and catarrhs. Feather dusters should be abandoned, and moist cloths used for dusting. When practicable, sweeping should be done in the evening, so that floating dust may completely settle before its removal by moist cloths in the morning. It should be remembered that dust settles on floors, as well as on furniture, so moist mops should be passed over floors, when these are uncarpeted, as part of the morning dusting. . . . The Advisory Board cordially commends the purpose of the Department to secure proper methods of cleaning and dust disposers in the public schools. . . , and would urge the desirability of instructing in the proper methods of dust disposal all those who have in charge the duty of cleaning public institutions . . . as well as those responsible for factories, stores, offices and the like, and commends the matter to the attention of all householders, to whom, not less than to inmates of public institutions and places of assembly, the risks of dust infections are at this time of especial significance."

A CENTENARIAN. — Felix Carty, a native of Ireland, died in a hospital at Syracuse, N. Y., on Jan. 18, at the reputed age of 104 years.

RAISING THE TUITION FEES AT COLUMBIA UNIVERSITY. — It has been voted by the trustees of Columbia Universityto fix the annual fee for tuition in the Schools of Applied Science and in the College of Physicians and Surgeons at $250 from and after July 1, 1904. The present annual fee in these schools is $200.

OFFICERS OF MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK. — At the annual meeting of the Medical Association of the Greater City of New York, held Jan. 11, the following officers were elected: President, Dr. Thomas E. Satterthwaite; Corresponding and Statistical Secretary, Chairman for the Burough of Queens, Dr. Neil Orrin Fitch; Member of the Executive Council, Dr. Stephen G. Cook. Dr. Augustus D. Ruggles had been renominated for Treasurer, but as his death occurred before the annual meeting, the Executive Council appointed Dr. J. Lee Morrill to serve as Treasurer for the ensuing year.

Obituary.

IN MEMORIAM — WILLIAM INGALLS, M.D.

THE Obstetrical Society of Boston offers the following memorial: " Dr. William Ingalls was an active member of this society for many years, and an honorary member at the time of his death. He attended the meetings regularly and contributed freely to the discussions relating to obstetrics, in which during life he had a very large experience. He had been in attendance at two thousand births, with a mortality of only three mothers on his record.

He served with ability during the Civil War, rising to high rank. He felt with other medical comrades, that the nearer he was to the firing line, the more faithfully he was performing his duty.

To the younger men Dr. Ingalls stood for a type of the old school family physician, who was guide, counsellor, doctor, and life-long friend. Such examples have seemed to be dying out for a time, but they are sure to return again.

Dr. Ingalls had a most attractive personality. We can all recall with love and pleasure the kind refined face, the soft voice, the gentle manner, and the carriage of the well-bred gentleman. He never ceased to win affection; and many of those most devoted to him were among the younger and more brilliant men in the profession. A noble, useful and unostentatious life, ending quietly and peacefully."

A CALM adviser, a gentle friend, precise, punctilious, careful, he gave a long and conscientious service to the hospital. Professional spirit was with him a religion. The Staff of the Boston City Hospital records its appreciation of his just and manly qualities.

D. W. CHEEVER.
J. G. BLAKE.
F. S. WATSON.

Jan. 14, 1904.

Miscellany.

ARTIFICIAL CAMPHOR.

Prior to 1828 chemists made a sharp distinction between organic and inorganic compounds, it being supposed that the latter are capable of preparation in the laboratory, while the former are formed only in the living organism, animal or vegetable, under the influence of a particular force — the life force. This view was rendered untenable by Wohler's discovery that urea, a typical secretion of the animal organism, can be prepared synthetically from cyanic acid and ammonia, two inorganic compounds. Many other "organic" compounds, such as acetic acid, lactic acid, glycerin and sugar have since been made synthetically, and as our knowledge of chemistry increased the old idea about a vital force has lost greatly in significance. We know now that the same chemical forces act both in the organic and inorganic worlds. It is well known that most of the vanilla extract now found on the market is not derived from the vanilla bean, but from coal tar. This coal tar furnishes a large number of other substances which are used in medicine and in the arts. Among these may be mentioned the various analgesics, aniline dyes and perfumes. Indigo and alcohol have also been made from their inorganic constituents, and recently chemists have discovered a method of making camphor synthetically, which makes the manufacture of this substance a profitable industry. Camphor has the formula $C_{16}H_{16}O$, and is an organic compound which was formerly derived only from the camphor-tree *Cinnamomum camphora*, by distilling the chips with water and purifying the product by sublimation. The camphor trees have, however, been growing scarce, and as a result the price of camphor has of late been very high. Japan has a monopoly on the natural product, but this monopoly has now been broken by the manufacture in this country of artificial camphor from turpentine. Turpentine has the formula of $C_{10}H_{16}$ and can be oxidized to $C_{10}H_{16}O$ by heating it with oxalic acid. A ton of turpentine is heated at one time with a quantity of oxalic acid, and out of this mixture is distilled the purest variety of camphor. It takes fifteen hours to complete a lot, and the yield of camphor is 25 to 30% of the weight of turpentine. Various other valuable oils are obtained at the same time as by-products. — *Journal American Medical Association.*

Correspondence.

THE BICYCLE AS A THERAPEUTIC AGENT.

Cleveland, Ohio, Jan. 20, 1904.

Mr. Editor: I was very much interested in the valuable article entitled, "The Bicycle as a Therapeutic Agent," contributed by Dr. L. H. Gulick, and which appeared in the Journal of Jan. 14, 1904.

While reading the article it occurred to me that it might be of interest to relate the use that I have made of the tricycle for the treatment and cure of congenital flat foot or weakened arch in children. When this condition is early observed I recommend the parents to secure for the child a small tricycle, allowing the child to run it about in the house, and also on the sidewalk and street. The results are more certain and satisfactory if the child is kept in bare feet during the warm months. If the vehicle is furnished the child at the beginning of the summer it is not only surprising how much time the tot will spend in the saddle, but better yet, the season often serves to effect a complete cure before the novelty has worn away. This simple measure has been so uniformally successful in relieving the condition that I now never prescribe anything else. It serves the double purpose of taking the weight of the child off the weakened arch, but also is a very potent means of exercising and developing the muscles of the foot and thus gradually but certainly building up a natural resistance to the weakness.

Very truly yours,

Charles J. Aldrich, M.D.

THE EMBRYOLOGICAL COLLECTION OF THE HARVARD MEDICAL SCHOOL.

Harvard Embryological Laboratory,
688 Boylston St., Boston, Jan. 23, 1904.

Mr. Editor: May I have the privilege of appealing through your columns for assistance from practitioners in building up the Embryological Collection of the Harvard Medical School? We are very desirous of obtaining as large a number as possible of human embryos of the first, second and third month, that is, up to about three inches in length, measured from the crown to the breech. For our purposes it is important that the specimens be placed as promptly as possible in a preserving fluid. We recommend as a preservative 10% formalin, that is, ten parts formalin with ninety parts water. This mixture is readily obtainable at any apothecary's and gives good results.

The laboratory will pay all expenses incurred in preserving and forwarding specimens.

The collection comprises at present sixteen series of sections from human embryos. Each series is carefully catalogued, and all the sections in the series are counted, so that any section can be immediately found by its number. The collection also includes to this date 180 series of other mammals, and over 600 series of the lower vertebrates, all representative types. As we have now good sets of series of sections of pig, rabbit and cat embryos, it has become more important than ever to secure a good set of the human series, so that it will afford a complete demonstration of the early development of man. Such a collection is possible, as is shown by the success of Prof. William Reis at Leipzig. Its scientific value can hardly be overestimated. With the generous assistance of practicing physicians the requisite specimens can be secured, and I think that the Laboratory can pledge itself to make the best use of all material received, especially as it has now the great advantage of the services of a workman who has become skilful and reliable in the cutting of serial sections.

The Harvard Embryological Collection is intended primarily as an aid to original research. Its use is by no means restricted to the officers and students of the Laboratory, but on the contrary it is opened freely to all competent investigators, who wish to profit by its advantages. I have the honor to remain,

Yours respectfully,

Charles Segwick Minot.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 16, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,610	473	22.42	26.08	3.66	2.54	.50
Chicago . . .	2,021,086	566	129	21.03	20.67	1.59	3.36	1.59
Philadelphia	1,407,968	—	—	—	—	—	—	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	228	55	18.86	20.61	.88	.44	1.75
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	157	—	30.57	16.56	.63	1.91	14.65
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	85	28	17.64	30.57	1.17	3.53	—
Boston . . .	617,950	236	76	21.61	22.45	3.81	—	.42
Worcester . .	136,925	30	8	13.33	13.33	—	3.33	—
Fall River . .	119,349	39	16	15.38	35.89	—	10.25	—
Lowell . . .	104,402	32	8	15.62	21.87	—	3.12	3.12
Cambridge .	100,998	28	13	14.28	21.42	3.57	3.57	3.57
Lynn	73,875	25	7	12.00	8.00	—	—	4.00
Lawrence . .	72,348	18	10	22.22	22.22	5.55	—	—
Springfield .	72,020	35	6	11.43	14.48	8.57	—	—
Somerville .	70,413	21	5	23.81	14.28	—	—	—
New Bedford	68,863	22	13	22.72	31.81	4.54	4.54	—
Holyoke . .	50,538	14	8	28.56	35.70	—	—	7.14
Brockton . .	46,601	8	2	—	—	—	—	—
Newton . . .	39,310	9	3	22.22	11.11	—	11.11	—
Haverhill . .	39,061	13	4	23.10	—	—	—	—
Malden . . .	37,205	5	1	—	20.00	—	—	—
Salem . . .	37,188	13	2	7.70	—	—	—	—
Chelsea . . .	36,499	13	3	15.40	23.10	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	14	4	7.14	28.56	—	—	—
Everett . . .	30,209	6	—	33.33	—	—	—	—
North Adams	29,201	6	4	16.67	33.33	—	—	—
Quincy . . .	26,798	10	3	10.00	20.00	10.00	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	10	3	20.00	20.00	—	—	—
Brookline . .	23,576	7	1	14.30	14.30	—	—	—
Pittsfield . .	22,870	13	5	15 40	7.70	—	—	7.70
Medford . .	21,956	3	1	66.67	—	—	—	—
Chicopee . .	21,692	10	5	20.00	20.00	—	10.60	—
Northampton	20,314	8	0	—	—	—	—	—
Beverly . . .	15,807	8	1	25.00	12.50	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	6	1	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	5	2	40.00	—	—	20.00	—
Newburyport	14,478	10	2	20.00	10.00	—	—	—
Woburn . . .	14,315	3	1	—	—	—	—	—
Melrose . . .	13,819	—	—	—	—	—	—	—
Westfield . .	13,809	3	—	33.33	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	4	1	25.00	25.00	25.00	—	—
Revere . . .	13,609	2	2	—	—	—	—	—
Framingham	12,974	2	1	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	5	4	40.00	40.00	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	2	1	—	—	—	—	—
Weymouth .	11,350	2	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,346; under five years of age, 912; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 713, acute lung diseases 770, consumption 370, scarlet fever 34, whooping cough 8, cerebrospinal meningitis 10, smallpox 3, erysipelas 15, puerperal fever 22, measles 31, typhoid fever 50, diarrheal diseases 78, diphtheria and croup 89.

From whooping cough, New York 2, Chicago 1, Pittsburg 2, Lawrence 1, Newburyport 1, Gardner 1. From smallpox, Pittsburg 3. From cerebrospinal meningitis, New York 7, Holyoke, Newton and Medford 1 each. From erysipelas, New York 3, Chicago 6, Baltimore 2, Pittsburg 1, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Jan. 2, the death-rate was 20.6. Deaths reported, 5,944; acute diseases of the respiratory organs (London) 228, whooping cough 135, diphtheria 68, measles 152, smallpox 3, scarlet fever 35.

The death-rate ranged from 11.5 in Kings Norton to 35.1 in York; London 21.1, West Ham 22.0, Brighton 24.9, Southampton 18.0, Plymouth 18.6, Bristol 20.3, Birmingham 23.3, Leicester 18.5, Nottingham 18.9, Liverpool 26.8, Bolton 21.4, Manchester 23 2, Salford 21.0, Bradford 19.3, Leeds 21.3, Hull 18.8, Cardiff 19.6, Rhondda 14.8, Barrow-in-Furnace 16.8, Preston 32.4.

METEOROLOGICAL RECORD.

For the week ending Jan. 16, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 10	29.70	28	33	22	82	81	82	W	W	10	12	C.	C.	0
M . 11	30.04	25	32	18	77	85	81	N W	N E	8	12	C.	O.	0
T. . 12	30.19	28	32	24	87	94	90	N	N	20	6	O.	N.	.02
W . 13	29.82	36	46	27	89	100	94	N E	S E	6	14	O.	R.	.99
T. . 14	29.49	37	42	32	86	65	76	S W	S W	12	16	O.	O.	.17
F. . 15	29.86	26	32	20	70	56	63	W	W	15	10	C.	C.	0
S. . 16	29.35	27	38	16	77	87	82	S	S W	5	12	F.	O.	.10
☞	29.78		36	23			81							1.28

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 23, 1904.

A. M. MOORE, surgeon. Retired, detached from the naval recruiting station, Chicago, and ordered home.

G. B. WILSON, surgeon. Detached from the "Wabash" and ordered to the naval torpedo station, Newport, and to additional duty in attendance upon naval and marine officers.

J. E. GARDNER, surgeon. Ordered to the "Wabash."

G. P. LUMSDEN, surgeon. Detached from the naval torpedo station and ordered to the naval recruiting and marine recruiting stations, Chicago, Ill.

A. R. WENTWORTH, surgeon. Detached from the "Albany" and ordered to the "Solace."

R. P. CRANDALL, surgeon. Detached from the "Wisconsin" and ordered to the "Oregon."

M. S. GUEST, passed assistant surgeon. Detached from the "Oregon" and ordered to the "Albany."

U. R. WEBB, assistant surgeon. Detached from the "Annapolis" and ordered to the naval station, Cavite, P. I.

L. W. BISHOP, assistant surgeon. Detached from the naval hospital, Yokohama, Japan, and ordered to the "Annapolis."

R. K. MCCLANAHAN, assistant surgeon. Ordered to the Asiatic station via steamer sailing from San Francisco, Feb. 1.

RECENT DEATHS.

EDMUND S. HANNA, M.D., a retired physician, died recently at East Orange, N. J., from apoplexy. He was seventy-five years old and a native of Steubenville, Ohio. He was graduated from Jefferson Medical College, Philadelphia, in 1850, and practiced for many years in Pittsburg, where he held the position of surgeon to several institutions and railroad companies. He had resided in East Orange for the last eight years.

J. VARNUM MOTT, M.D., a well-known New York physician and a grandson of Dr. Valentine Mott, died suddenly in Boston on Jan. 23, of cardiac disease. He was a graduate of the College of Physicians and Surgeons, New York, and fifty-three years of age. Dr. Mott had not been in active practice for some time.

EDWARD BARBILLAC DANA, JR., M.D., of Metuchen, N. J., died from pneumonia on Jan. 23, at the age of forty-three years.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Fractures, with notes upon a few Common Dislocations. By Charles Locke Scudder, M. D. Fourth edition. Thoroughly revised. Illustrated. Philadelphia, New York and London: W. B. Saunders & Co., 1903.

Treatment of Neurasthenia. By A. Proust and Gilbert Ballet. Translated by Peter Campbell Smith, L. R. C. P., L. R. C. S. Edin., L. F. P. S. Glasg. New York: Edward R. Pelton, 1903.

Original Articles.

REPORT OF CASES OF TREPHINING FOR EPILEPSY.[1]

BY JOHN C. MUNRO, M.D., BOSTON, MASS.

In reporting the following eleven cases of trephining for epilepsy I wish especially to put on record the clinical histories and the lesions found at operation. By the accumulation of such data from different surgeons some one in the future may be able to make such use of these observations as will determine with greater accuracy which patients are likely to benefit by surgical interference.

I know of no more discouraging field for the surgeon than trephining for epilepsy, and yet I cannot but feel instinctively that there is a small class of unfortunates suffering from this disease which can be helped, probably in a way at present unexplainable. I do not refer, of course, to those with recent palpable depressions of the skull nor to those with new growths, but to those in whom there may be some unsuspected lesion of the cortex, or pia, or dura, a lesion which cannot be diagnosticated except at operation or autopsy. In practically every case reported here there was some pathological lesion or abnormality found at operation but vaguely suspected beforehand. It is far too early to surmise what bearing these findings have on the causation of the epileptic attacks; that element must be left for determination after the accumulation of hundreds of such observations. Whether relief will follow operation in any group or groups of lesions such as have been found here it is impossible to predict.

In the first place, the one important element of the time of operation after the lesion has started to form is of great significance. Until we can collect the cases of late operation to compare with cases of early operation, before the epileptic habit has been formed, we are not in a position to condemn, nor indeed to advocate, early interference. Other things being equal, and judging from analogous conditions elsewhere in the nervous system, any benefit to be derived from mechanical means is more likely to come early in the course of the disease than late.

Unfortunately, the data in the cases reported here are from the naked eye and not from microscopical observation. This is a serious defect, and fully appreciated. To a certain extent it can be corrected in future undertakings.

Owing to the enormous strides in institutional treatment that have been made within the last few years by the splendid enthusiasm of the members of this Association, the surgeon has a still more difficult task ahead of him, to compete with the results now attained by conservatism. It goes without saying that a large, a very large, majority of epileptics are unfitted for operation, no matter how harmless the operation may be, but there is still a small class that stands on the border-line where surgery must be considered, and it is in this class that surgeons must interest themselves and their medical consultants. With the class of patients in whom the epilepsies are due to reflex excitation from lesions elsewhere in the body, — that is, from organized disturbances in the abdomen, pelvis, chest, etc., — this paper does not deal. I feel very sure, judging from the relief to the insane following operations for correction of lesions in the viscera and other organs, that it is important for those in charge of epileptics to search carefully for diseases of the stomach, bile passages, appendix, pelvic organs, etc. When such lesions are present, and of possible significance in producing epileptic attacks, patients should not be denied surgical relief any more than sane or otherwise healthy individuals.

To flatly tabulate my cases on the score of benefit or cure is impossible. In the first place, they have not been under observation long enough, or else they have been lost sight of and the end results cannot be obtained. In the second place, the various lesions come under so many divisions that they cannot properly be compared one with another. Some patients were doubtless temporarily benefited, but whether *post hoc propter hoc* is extremely doubtful.

Several were either not helped, or were worse after operation. Altogether, as was first stated, the outlook is far from encouraging. But if we can see enough cases of living pathology, and eventually can group these cases in numbers sufficiently large, according to the results, the duration of pre-operative attacks, etc., and compare them with the results in similar cases under institutional treatment, we shall be better able to advocate surgical interference or medical treatment, as the case may be.

For the first two cases I am indebted to Dr. F. B. Lund, who has kindly placed them at my disposal. The last three cases are from the Surgical Clinic of the Carney Hospital, one operation being done by my colleague, Dr. J. T. Bottomley, and two by myself.

Dr. F. B. Lund's first case:

C. M., male, twenty-six. Iron moulder. When five years old fell a distance of about eighteen feet, landing on top of his head. Unconscious for three days. At eighteen years of age he began to have attacks of nightmare, crying out. At twenty years of age his right shoulder, caught between two cars, was dislocated. Married at twenty-one, when nightmare became worse, in that, after crying out he would have a general convulsion. Soon he began to throw out his right shoulder during the convulsions.

In March, 1900, Dr. Lund shortened the anterior portion of the capsule of the shoulder, the result being perfect, no dislocation having taken place since. Later he began to throw out the left shoulder, and its capsule was shortened in the same way by Dr. Lund, but relapse occurred after three months during a very severe convulsion. The convulsions always come on in the night, and his wife can sometimes prevent them

[1] Read at the meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics. Philadelphia, Nov. 5, 1903.

by turning him over in bed. He has bitten his tongue for years and has attacked his wife and children. At times he feels a sensation of dizziness and choking, when, if he gets up in time, he can stop the threatened convulsion. As the convulsions were growing more severe, and he was at times dangerous to his family, it was thought best to attempt operative relief.

Examination in January, 1903, showed a well-developed, very muscular man. On the vertex just to the right of the sagittal suture, at the intersection of a line erected just in front of the ear, perpendicular to Reid's base line, was a stellate scar.

Operation. The scar was turned down in a semicircular flap and a ¾-inch trephine opening made just below it. On opening the dura the pia was found adherent both to the dura and to the brain beneath. On turning back the dura several white spots of dense fibrous tissue were found on the pia, while the brain beneath was lighter and denser than normal, that is, it had the appearance of scar tissue. This scar faded off gradually into normal brain, and its exact limits could not be determined. As the location was close to the motor area it was thought inadvisable to excise the scar. The dura was replaced and sutured. The patient made an excellent convalescence, and eight days later the capsule of the left shoulder was again shortened.

The patient had one or two convulsions while in the hospital and after his return home. In September, 1903, he reported that his attacks were much less frequent and less severe, and that his shoulder had not been dislocated since leaving the hospital.

Dr. Lund's second case:

J. P., male. Fireman, twenty-seven years old. When twenty-two months old was struck in the forehead by the step of a passing engine. The skull was fractured and he was unconscious for a while, but up to five years ago no trouble referable to this injury had arisen and in other ways he had always been well. Five years ago he began to have night attacks, apparently *petit mal*, when he would suddenly stiffen and cry out. Four years ago attacks of momentary unconsciousness during the day began, generally preceded by an aura, described by the patient as a "trembling sensation." When at their worst these attacks came seven or eight times a day, but they have been controlled to some extent by bromides. Has been unable to work much for the past four years.

Examination showed an old ragged scar on the right frontal eminence, just below the hair line. A slight irregularity, but no distinct depression over the bony parts, can be made out.

Operation, Nov. 14, 1902. Dr. Lund. Under ether a semicircular flap was turned down, exposing the injured area, which was roughened but not depressed. A trephine button was removed and the bone found thin at one point. The dura bulged markedly and pulsated forcibly. Beneath the dura, in the right frontal lobe, a cavity the size of an English walnut was found, filled with a translucent semi-gelatinous substance, evidently serum and coagulated fibrin. This was evacuated and the brain beneath could be seen pulsating normally. The membrane lining the cyst cavity was not detached, the cavity being drained with gauze tape.

Nov. 17th. No recurrence of the epileptiform seizures. On the day following the operation the temperature rose to 103° and the pulse became rapid. On removing the wick a large quantity of serous fluid escaped and rubber drainage was substituted for the wick. Since then the dressing has been saturated each day with serum. Pulse and temperature again normal.

Nov. 29th. No recurrence of the seizures. The serous discharge has practically ceased, though there is a small sinus still kept open. Mental condition excellent. Discharged from hospital relieved.

About six weeks after operation the attacks recurred, following closure of the sinus. He was then operated upon by Dr. M. J. Morrisey of Unionville, Conn., who removed a larger area of bone in order to convert the cyst into a cavity which could granulate in from the edges. Relief for a long time followed this procedure, but the attacks have relapsed.

J. S., male, thirty-two. In 1890 patient was wrecked at sea, receiving a compound fracture of the skull. He was picked up by a mail-boat and landed in Philadelphia three days after the wreck, being unconscious all the time. He was then operated upon three times in one of the hospitals, and stated that epileptic convulsions followed these operations. Five years later he was operated upon twice in a Chicago hospital, and at one of these operations, according to his statement, a bit of an instrument as large as the finger-nail was found. Since then he has had but one convulsion, but is troubled with twitching of the hands and arms, and thinks this twitching is more marked on the right side. Does not use alcohol nor tobacco. His family history is excellent. The account given of his various operations varies at times, and it is difficult to unravel all of his statements. After his last operation in Chicago he gained weight, and is said to have had only one severe convulsion, and now complains more of the twitching than anything. At times, during this twitching, he drops anything that he holds in his hand, and occasionally falls. Urine negative.

Shortly before admission, patient stated that he received a blow on the head over the area of trephining, followed by a convulsion on the following day, with vomiting and nose-bleed. No paralysis. In the parietal and occipital regions there are numerous scars showing incisions of the former operations.

Operation by the writer June 11, 1890, at Boston City Hospital. Ether. Left occipito-parietal region covered with scars from earlier operations. Inverted U incision outside the edge of former trephine opening. Posterior and median portion of opening thickened on the edge. The outer portion, where the patient complained of tenderness, was also thickened. The former trephine opening was covered with a thick, tough layer of cicatricial tissue, in which a fragment of gold leaf, said to have been embedded in a previous operation, was seen. The thickened edge was gnawed away until healthy bone was reached, in all, a segment about one inch by a half inch being removed. The pia beneath this portion was dark, thickened and rough. Exploration of the under surface of the bone showed no further abnormalities. Patient in excellent condition after operation.

June 15th. Patient in excellent condition, free from pain, no convulsions or twitching.

June 19th. Wound dressed. Primary union. Has been around the ward for three days. No symptoms except his mental symptoms. He tells many stories of shipwrecks in which he has been—says that he has been an officer on board yachts of the Prince of Wales and of the Rothschilds. Discharged to the neurological department.

Seven months later the patient reported that he had never been so well since the original injury and that he had had only two slight convulsive attacks, each one affecting his right fingers for a moment while writing. He had been in charge of the neurological

department for general nervousness, evidently of a marked character, but it was learned later through an acquaintance that the patient had had at least two or three epileptic attacks of a severe type, he not being conscious of their onset.

L. C., female, fifteen. Italian. Referred to the writer by Dr. H. C. Valentine. Admitted to the City Hospital Aug. 22, 1898.

Father died of Bright's disease. Three sisters and three brothers died in infancy from unknown cause.

When fourteen months old she fell, striking her head. Convulsions followed for a while and then disappeared for several years. She has frequently bitten her tongue, and from her friends she knows that her face twitches considerably during an attack. The attacks come irregularly, sometimes once a week, or every day for a week, and then at intervals of a month or more.

Examination of the head, negative.

Referred in consultation to Dr. W. N. Bullard, who advised exploratory trephining.

Operation. Ether. U-shaped flap opening over arm center, on right side. Protusion and very faint pulsation. Dura not thickened. Skull thick and tough, but apparently not pathological. Opening enlarged considerably and the dura slit. No excess of subdural fluid. Ventricle tapped, but no excess of fluid found. At one spot on a convolution, apparently at or near the arm center, the cortex looked darker and more opaque than normal over an area about three-eighths of an inch in diameter. This area was excised for diagnosis. Elsewhere the brain looked and felt normal. Pulsation had returned after the various tappings, but without any evidence of an excess of fluid having been withdrawn. Dura sutured loosely and the skin closed, allowing for a rubber tissue drain.

Aug. 26th. She rested poorly during the night after operation, and had several spasms early this morning, complaining of headache.

Aug. 27th. Much better, slept well, no symptoms.

Aug. 29th. Wound dressed. Clean. Wick removed.

Sept. 2d. Wound practically healed, one spasm early this morning.

Sept. 15th. Patient has been up and about the ward for a week, always in company with another patient. No subjective symptoms. Discharged to neurological department.

She improved for several months, then returned to Italy and has been lost sight of.

The specimen returned for examination was lost.

J. E. E., male, aged twenty-six, carpenter.

Was seen with Dr. L. F. Hatch in December, 1897. Family history excellent, general health good. Knows of no causative injury to his head, except a blow while coasting when a boy of twelve. Was not unconscious at that time and did not regard the injury as of any moment.

When about twenty years of age his first and most severe epileptic attack came on, without any warning. The attack lasted throughout the night, one convulsion succeeding another. Two days later the convulsions returned, lasting for three weeks, the separate fits following one another at intervals of a few minutes to an hour. Since then they have come on more or less frequently at intervals varying from a week to three months. One year ago had a severe attack, and was more or less upset for a week with exhaustion and mental disturbance. Lately the attacks have been less severe, but he has complained more of dizziness than heretofore. The attacks come by night or day, with warning, lasting for about five minutes. The attacks themselves last about two minutes. He does not lose consciousness, though he may do things of which he has no recollection. Rarely bites his tongue. The attack starts with spasmodic flexion of the left leg and thigh, spasm of the left trunk muscles and spasmodic abduction of the left upper extremity, which can be controlled, in the lighter attacks, with his right hand. The head is drawn to the left. There is no frothing at the mouth.

He has been on mild bromide treatment, as heavy doses affect him mentally, and he refuses to take the drug except to temporarily control his dizziness.

General physical examination, negative.

Was seen in consultation by Dr. W. N. Bullard, who advised trephining.

First operation at Boston City Hospital July, 1898. Ether. Trephine opening made over the fissure of Rolando near or over the leg center. Dura pulsated very slightly and was more tense than normal. Upon being opened, serum escaped in moderate quantity. Electric current used to stimulate the centers, but the result was unsatisfactory. In the sulcus, apparently at its superior genu, there was a depression filled with edematous pia, the latter having opaque white spots about an eighth of an inch in diameter, in its substance. These spots extended anteriorly and laterally for a short distance beyond the limit of the bone opening. On both sides of the depression, in the sulcus, the convolutions felt normal. Exploration with a director failed to show anything abnormal within the brain. Towards the end of the operation, though the brain bulged slightly, there was much better pulsation. The dura was stitched lightly and the skin sutured, leaving an opening for a temporary drain of rubber tissue.

Convalescence was satisfactory, and he was discharged in two weeks for observation and medical treatment. There was no definite gain for about six months, when he began to improve, but in the spring of 1899 he had a series of severe convulsions lasting two weeks. After this he had no attack until November, 1899, after which date he had two slight convulsions, and he considered himself a good deal improved. He found that he could work most of the time, the attacks being limited to slight dizziness without loss of consciousness. He feared, however, a severe outbreak in the coming spring and was anxious for another operation.

After further consultation with Dr. Bullard, a second operation was performed in May, 1900, again at the Boston City Hospital.

Second operation. Ether. Horseshoe incision, carried about three-quarters of an inch beyond the old scar. In dissecting the dura from the brain in the old opening, the brain was intimately adherent in the posterior half. Anteriorly it was not adherent, pia being cloudy, bluish and with opaque spots, as at first operation. From the edges of the bone there were growing several flat projections, not pressing inwards against the brain, but apparently being new bone shooting out from the edge of the first trephine hole over a distance of an eighth to a sixteenth of an inch. The opening was enlarged forwards for an inch and the dura reflected, showing a cloudy, bluish pia with opaque spots, more or less enclosed in a triangle of large veins an eighth of an inch or more in diameter. These veins were ligated with catgut at the periphery, and the enclosed pia, with its small piece of convolution, was removed. Beyond this area the pia appeared to be healthy for the most part. Several pial and dural vessels gave troublesome hemorrhage. The dural flap was sutured and the skin closed, allowing for an iodoform gauze wick drain.

The patient stood the operation, which was a long

one, fairly well. Within twelve hours he had a general clonic convulsion and a left hemiplegia was noticed by the attendant for the first time. Face and tongue not involved. The paralysis of the lower extremity disappeared by the fifth day, and by the time of his discharge, sixteen days after operation, the paralysis of the upper extremity was disappearing, although all motions were weak. After two months of electrical treatment all paralysis disappeared.

Five months after operation there had been no definite improvement. He had had occasional convulsions, the attacks starting in the left upper extremity and not in the leg, as heretofore. He has bitten his tongue occasionally. The dizzy spells which had troubled him before operation, however, had disappeared.

I then lost sight of him until October, 1903, when he reported that up to November, 1902, he had had attacks every few weeks but without interference with his work. Since November he had gone ten months without any attack, but in the last month he had had two or three very slight attacks.

In his old attacks he always had a forewarning, often feeling a strong desire to run away to some place and lie down, but latterly the attacks come on easily, without any feeling of fear or weakness, and he keeps at work and goes about without fear of a general convulsion. Has had only one night attack since operation.

His left hand is as strong as before, but the fingers are a little clumsy in handling small nails, that is, he is slow to pick up and adjust a nail. He feels that his fingers are not so responsive to his will as before operation.

His general health is good, and mentally he seems to be the same as when he first consulted me. He takes from 1 to 3 dr. of bromide after his work is over, and has done so for months, but the amount is less than that which he was taking when the attacks were severe.

He himself feels that there has been a marked and satisfactory gain, but, like myself, he is skeptical as to the *role* played by the operation in the improvement.

Examination of the firm depression at site of operation shows no tenderness.

T. M., male, nineteen. Student. Referred to the writer for operation by Dr. P. C. Knapp, who has kindly given me the following history, which I quote in his own words:

"T. M. Consulted me first April 24, 1899. Family history: Father excessively hysterical, mother extremely nervous, mother's brother had hemiplegia with ephasia. This young man had always been in good health until the autumn of 1897, when he was shut up in a closet at school by some of his schoolfellows and endeavored to get out over the transom. The transom fell upon his neck, and he was said to have been nearly strangled. Not long after, while playing football, he was kicked in the back of the head, but was not rendered unconscious. Some time in the following spring he began to have attacks in which he suddenly lost consciousness, moaned slightly and fell forward without any convulsive movement. When I first saw him he was having a number of these attacks each day, and they would come on in his sleep, throwing him out of bed. He had several of these attacks under my observation, in which he suddenly fell forward from the chair to the floor and gave a slight moan. There was a slight quiver of the limbs. After forty or fifty seconds he regained consciousness, seemed somewhat dazed for two or three minutes, and then picked himself up without further trouble. One of these attacks came on while examining his head and pressing upon the place where he said he had been kicked.

"Physical examination was negative, except that the right arm was somewhat weaker than the left and there was a very slight blunting of sensibility there. He was a very powerful, muscular fellow, of good habits, and with no history of previous disease. Examination of eyes negative.

"He continued during the term as a student, doing well in his studies and being apparently normal in the intervals between his attacks. Under bromide the attacks diminished very markedly in number, so that by June he was having them at the rate of one in two or three weeks. He was given a mixture of bromide, codeia and adonis vernalis. In July he went with his family to the seashore, and while there continued the above treatment, having attacks at longer intervals, once in three or four weeks. He seemed to his family rather nervous in regard to these attacks and to be considerably disturbed because he had one or two of them in company. In August, while at the seashore, he states that he saw some rum in the house and took a large drink, nearly a cupful. His brother regards this statement as exaggerated — he probably took very little. Soon after that, in the evening, he was attacked in a different form from his previous attacks, having the idea that he saw snakes, which were coming toward him, and became violently maniacal for a period of from half an hour to an hour, struggling violently with every one who came near him. The attack ceased instantly as soon as the physician who was called inserted the needle under the skin to inject morphine. The following day he had one or two more attacks and was taken to Winchendon. While there he had several similar attacks, in which he was extremely violent — split open the straightjacket by muscular contractions, simply throwing his shoulders forward, and was more than four strong attendants could handle. In the intervals between the attacks he was perfectly rational, bright, cheerful and normal. At the request of the family he was brought to the Boston City Hospital for operation."

Aug. 9, 1899. Operation. Dr. P. C. Knapp and Dr. Taylor of Sag Harbor present. Ether. U incision in the right occiput over tender area. Trephine button adherent to dura. Nothing about the skull in the neighborhood felt abnormal. Dura quite firmly adherent along the right lambdoidal suture. The dura bulged into the opening and scarcely pulsated, its tension being abnormally increased. It was then opened, and the brain bulged out to beyond the outer surface of the skull and scarcely pulsated. The opening enlarged to an inch and a half in diameter. Nothing definite was felt on palpating the brain except the abnormal tension. A director carried around outside and inside the dura showed nothing. Without more definite localization, and on the chance that more extensive exploration would be needed later, it seemed best to stop and complete the operation at another sitting. Dura not closed, skin sutured, allowing for rubber tissue drain. No shock followed operation.

Sept. 20. Patient has been up and about the ward and out of doors for some time past. No convulsion for seven or eight days. Discharged relieved.

A better result followed the operation than was anticipated. Considerable fluid oozed from the wound for a while. The protrusion of the brain disappeared, leaving a normal pulsating scalp, and the convulsions became much less severe and frequent, and by the end of six weeks he was so much improved that it was deemed best to discharge him in the care of a physician and await developments.

To return to Dr. Knapp's report:

"During the convalescence from the operation he had a few attacks in which he saw snakes and became violent. He had only one in my presence, and that was very brief. I learned afterwards that he stood in considerable awe of me. Other attacks were suppressed by throwing cold water upon him. He was taken to Bloomingdale, where he remained for a number of months. While there he had comparatively few attacks, and after a time he felt himself that his condition had cleared up and that the operation had been an excellent thing for him. While at Bloomingdale he made an attempt at suicide, which was apparently merely a dramatic display, without any real intention to commit suicide.

"In May, 1900, he returned to Boston, expressing himself as feeling well, but weak. The following autumn he resumed his studies, and had no more attacks of either the convulsions or maniacal outbursts, but he frequently spoke of having attacks of weakness in which his heart gave out. During the following year he complained a good deal of his heart, as having attacks of palpitation and cardiac weakness, but there was never any objective evidence of any disturbance of the heart. At one time he went to his physician in Cambridge, dropped upon the lounge and stated that he had taken an overdose of digitalis and was suffering greatly in consequence. On investigation, the amount of digitalis taken was small, and he showed no indications of digitalis poisoning.

"He was for the next year or two, while under observation, decidedly hypochondriacal, had more or less digestive disturbance; but was free from any convulsive attacks. He continued to do his work as a student, graduated with high honors, and finally married, since which time I have heard nothing of him."

G. A. L., male, twenty-one years old. Referred to the writer by Dr. H. O. Benner. One of sixteen children. Always well until June, 1896, when he was hit high up on the right side of the head with a bottle. A month later he fell from a swing and was unconscious for four or five days. In falling he is said to have struck the left side of his face. Hemiplegia followed, disappearing in two or three months, after treatment at the Framingham Hospital. Following his discharge in September, a clear history cannot be obtained, but no account of convulsions can be secured from the family, while he was at home, until February, 1898, since which date they have been growing more and more severe and his mental condition has been steadily deteriorating. The convulsions come at intervals varying from five days to three months, and lately he has been very irritable and cross. There is no family history of epilepsy on either side, but the family is unintelligent. No definite history of alcoholism in his parents can be obtained.

Operation Sept. 26, 1900, at the Framingham Hospital. Ether. Just before operation he had six convulsions, the spasms, according to the observation of the nurses, beginning in the right foot and remaining most marked in the right lower extremity. Horseshoe flap over the upper end of fissure of Rolando, on right side, where lay a well-marked scar. The bone itself showed no evidence of injury; the dura, without thickening or opacity, was moderately tense and pulsated slightly. The opening was then enlarged medianwards nearly to the edge of the sinus and downwards along the line of the fissure. On turning back the dura, the fissure of Rolando, an anterior and a connecting fissure, showed opaque white pia stretched across, with enlarged veins beneath. The pia was cut in line with the fissures and some of it removed. The enlarged vessels were ligated with catgut. Palpation showed no evidence of tumor. There was moderate bulging of the brain, which could be pressed back without difficulty. The dura was sutured lightly and the wound closed, allowing for a rubber tissue drain.

After operation the mental condition improved quite a little. The wound healed aseptically, and he had no convulsions until Oct. 12, when he had seven.

Oct. 26th he had four slight convulsions; Nov. 13th, six bad convulsions; Nov. 22d, one slight convulsion, while in the street.

For two or three months he seemed to improve somewhat, the attacks not coming so often nor being so severe in character. After this, however, he became worse, and about two years after operation he was committed to an insane asylum.

E. O'B., female, seven years of age. Admitted to the Boston City Hospital Jan. 16, 1900.

Family history negative. Talked well at eighteen months and was a bright child until the accident.

Four years ago fell from a hammock, getting up and running about as usual. A lump the size of an egg appeared in the occipital region shortly afterwards. She was well for a week, when, early one morning she had a universal spasm, — the tongue not being bitten, — and she became unconscious. She was kept under ether all day, the spasms returning as soon as the ether was removed. For three weeks after this she could not talk plainly, and the left side was paralyzed. A month later she is said to have been well, then had a slight convulsion and fell, but without loss of consciousness. The convulsions since then have come on three or four times in the day, with occasional intervals lasting several months. Dec. 26, 1899, she fell down a flight of stairs. No convulsion at the time, no loss of consciousness. But since then has had five slight convulsions. Does not bite the tongue and knows when the attacks are coming on. The convulsions are first tonic, becoming clonic. Appetite at times ravenous, at other times poor. The child is feeble-minded, feeds herself with a spoon, and does not talk as plainly as formerly. Unable to go to school on account of restlessness; at times is cross and violent. Seen in consultation with Dr. W. N. Bullard.

Examination shows her to be a mouth-breather, with protruding tongue, drooling constantly, and with a vacant stare. Skull shows a symmetry in the right occipital region, with a rounded protrusion 3 cm. in diameter. Pupils react normally. Is right-handed.

Jan. 16. Slight convulsion to-day; did not bite tongue nor lose consciousness.

Jan. 19th. Operation by writer. Ether. U-shaped flap. Button removed a little in front of the motor center and low down. Enlarged upwards, forwards and backwards. No pulsation of dura, no enlargement of the meningeal vessels that lay across the opening. Dura about twice the ordinary thickness and slightly adherent to the bone in front of the coronary suture. The dura was opened anterior to the meningeal vessels, and a cloudy edematous pia bulged out beyond the level of the dura. On puncturing the pia considerable pial fluid escaped; no subpial fluid. With the escape of the fluid pulsation appeared. A director passed into the brain met with moderate resistance about half an inch from the surface. With the loss of fluid and retreat of the brain from the skull, the finger passed over the surface, felt that below the trephine opening — that is, nearer the temporo-sphenoidal area — the brain was more indurated than

elsewhere, but no definite growth could be determined. With the escape of the fluid the pulse rose considerably, but not alarmingly. The brain itself looked normal, the pia being cloudy and the dura thickened. Dura lightly sutured and the skin sutured, allowing for capillary drainage.

Jan. 21st. Wick removed. Slight serous discharge. Wound clean. No symptoms.

Jan. 30th. General convulsion to-day; first one since operation.

Feb. 7th. General convulsion. Pupils were dilated and did not react to light. No deviation to the eyes. Mouth open. Did not bite the tongue. Apparently unconscious. Incontinence of urine during the convulsion. Left hand open; the right fingers clinched over flexed thumb. Convulsions more marked on right side, the whole attack lasting about ten minutes. Afterwards she was drowsy and slept for a while.

Feb. 7th. Second operation. Ether. U-shaped flap in occipito-parietal region, the anterior leg crossing the scar of the posterior leg of the first wound. Under the first wound the space between the dura and the skin was filled with tough granulation tissue, the dura itself not being thickened nor appearing abnormal in any way. Starting from the posterior edge of the old trephine opening, a large space was gnawed out posterior to the lambdoidal suture and inferiorly nearly to the level of the tentorium. Throughout the whole of this area, after opening the dura, which pulsated slightly, the pia was cloudly, as at the first operation, and bulging from serum which leaked out steadily. The pia in the posterior — that is, occipital portion — was seen to stretch over a large cyst cavity, with several tortuous vessels of the size of a normal superior profunda artery running in its meshes, intermingled with a bunch of congested veins and a lot of yellowish strands that resembled scar tissue. On opening the pial membrane between the vessels a spherical cyst, two inches in diameter by measure, was found occupying the region of the occipital lobes or else pushing the latter forward, producing in this way the indurated condition found at the first operation. The posterior wall of this cyst was formed by the skull, the inner wall was formed, apparently, by the central ganglia, and the wall of the lateral ventricle, as a bluish translucent area, could be seen in the region of the ventricle. The floor was formed by the tentorium and the anterior wall by compressed brain, the latter projecting backwards slightly at the surface, forming a distinct, sharp edge. The cyst contained yellowish serum. The dura was sutured with catgut, leaving an opening posteriorly for drainage. The scalp was sutured, allowing for a cigarette drain.

The patient stood the operation fairly well, the pulse rising with the evacuation of serum.

Feb. 9th. Drain removed. About 3 dr. of clear fluid escaped. Wound clean.

Feb. 12th. Very irritable. Temperature 101.

Feb. 17th. Wound healed except at the lower angle, where rubber dam allows serous discharge. Sinus two inches deep, half an inch in diameter. Rubber dam drainage.

Feb. 25th. General convulsion. The first one since the second operation.

March 1st. General convulsion.

March 4th. Sinus healed. Drainage removed. No discharge.

March 20th. Wound healed. Apparently no mental improvement.

March 21st. Patient apparently improved for a while after second operation, and then elapsed back into original condition.

March 21st. Third operation. Ether. Short incision. Half an inch in front of the posterior edge of the skull an opening was made. Beneath this opening lay the expanded brain tissue, somewhat edematous, with a clear pia. Posterior to this was a small cystlike depression not over half an inch in diameter, from which clear serum escaped. So far as could be told, the brain had expanded to within one half an inch of its normal limit. Rubber tissue drain. Wound sutured. Gauze dressing.

March 25th. No improvement. Good appetite. General condition excellent.

March 31st. There has been, possibly, slight improvement in general condition, more marked some days than others. Is more careful about wetting the bed and drools less. Mentally she seems to be a little improved, but still has epileptic attacks. Over the area of trephine opening there is normal pulsation.

Discharged relieved.

The three following cases are from the Surgical Clinic of the Carney Hospital:

CASE XXXI. S. V., male, thirty-three years old. Harness maker. Referred to writer by Dr. H. C. Valentine.

Family history negative. When eight years of age a wagon-wheel ran over his head, leaving a scar on the right side near the inner orbital angle. In October, 1899, he was struck on the head by a block of wood, the skull being exposed. He was unconscious for a time. One year later he began to have a tingling sensation in the ends of his fingers in the right hand, but not in the thumb. In October, 1902, these tingling sensations, instead of passing away, were followed by flexion of the fingers and of the wrist, with tremor of the arm, followed by stiffness. He describes a feeling as of "something tightening" inside his head before he becomes unconscious. Since October he has had three attacks, in February, May and June of this year. The attacks come about 4 A.M. and last half an hour. Otherwise he is perfectly well. Seen by Dr. W. N. Bullard, in consultation, who advised operation.

June 13th, 1903. Operation by writer at Carney Hospital. Ether. Trephine opening made over the arm center on the left side. Dura tense, bulging, with very slight pulsation. Pia and brain beneath the opening normal. Forwards and upwards, beneath the scar in the scalp, was a slight, smooth, rounded bulging on the inner table. This was removed with the rougeur. On opening the dura at this place the pia seemed normal. The cortex in this convolution of the anterior arm center looked a little more opaque than the posterior convolution; otherwise negative. The ventricle was tapped and several drachms of clear fluid escaped under moderate pressure. Pulsation and tension returned to normal. Dura loosely sutured and skin closed, allowing for a rubber tissue drain. The patient had a little headache following the operation, but otherwise convalescence was satisfactory. On June 25th he was discharged with the wound healed, normal pulsation of scar, and with no subjective symptoms, except slight pain in the right forearm in the afternoon and occasional tingling in the tips of the fingers of the right hand.

Oct. 31st. Patient reports that he has had no epileptic seizures and has gained twenty pounds. About once a week he has a fleeting tingling in the right fingers or anterior surface of the wrist, but without any twitching, and the headaches have disappeared. He has returned to his regular work. There is normal pulsation of the scar and he appears to be in good general health.

No. 223. M. L., school boy, fourteen and a half years of age. Father died with meningitis and several members of the family have died of pulmonary tuberculosis. Patient always strong and healthy. In August, 1903, while stooping down to examine a leak in a hose pipe, he remained stooping for some time, until discovered by his brother, when he seemed dazed, and at first did not answer when spoken to. He remained in this condition for four hours, when he recovered consciousness, spoke and recognized his friends, but complained of steady severe headache on the right side of his head, and vomited. During the night he slept well, but awoke with headache, from which he recovered almost completely. Twelve days later he was sent to a store on an errand, and as he did not return his mother went in search of him, and found him in another store in a dazed condition similar to that in his preceding attack. Two days afterwards the left side of his face began to twitch, he frothed at the mouth, bit his tongue and became unconscious. Chloroform was given to relieve the attack. He entered the hospital Sept. 1st, still suffering from similar attacks, except that the left arm was involved in addition. He had two attacks on the cars going to the hospital.

Physical examination. Negative. Patient complains of headache.

Sept. 2d. Four spasms to-day. Conscious but unable to speak. Knows when the attack is coming on and gets into bed. Has severe headaches afterwards. Is promptly relieved by choloroform.

Sept. 3d. No frothing at the mouth in the attacks to-day. Left arm and leg involved.

From Sept. 4th to the 8th he had two or three convulsions a day and at times seemed very stupid. No Babinski; knee jerks normal; eyes normal.

Sept. 10th. Delirious at times and stupid between the attacks of delirium. Is apparently worse.

Sept. 11th. Operation by Dr. J. T. Bottomley at Carney Hospital. Ether. Trephine opening over the face center of the right side. On opening the dura the brain protruded, but nothing particularly abnormal was found, except that possibly the brain appeared somewhat softer than usual. Several attempts to tap the ventricle brought no fluid. The opening was enlarged backwards and upwards and a small portion of the brain tissue approximately over the face center excised. Dura sutured and skin closed. He recovered well from ether and complained only of slight headache. No paralysis nor convulsions followed the operation, and twelve days later, when he was discharged, he had had no return of his symptoms, the pulsation over the wound being normal.

When heard from Nov. 1st there had been no return of his trouble.

F. L. K. No. 352. Carriage painter, referred to the writer by Dr. Hamblen of Bedford and Dr. W. N. Bullard. Thirty-nine years old, without history of insanity, alcohol or tuberculosis in his family.

Struck the right fronto-parietal region of his head, three to four years ago, against a protruding knob in the limb of a tree. The blow was not a severe one, but was followed by a lump which persisted for several months. From the time of the accident he has had more or less pain at the seat of injury and immediately preceding his epileptic seizures the pain is increased.

The first epileptic attack came in June, 1903, and headaches which he had been complaining of before that time became severe, at times "almost driving him crazy." These headaches lasted from a few minutes to twelve hours. His first attack came while he was working in a garden on a hot day. He was unconscious for one and one-half hours.

A week later he had a second attack, falling off of a couch. Under bromides he went without an attack for five weeks, when, after overeating some bananas, the fits returned, coming at first every week and lately every day or two.

He is said to have had pulmonary tuberculosis some years ago, with subsequent healing of the cavities. He also had excision of the left elbow for tuberculosis, at the Waltham Hospital, six years ago, with excellent result. Otherwise he is a healthy, strong man.

His attacks begin with choking or gurgling, clinching of both hands, spasms of legs, relaxation and cyanosis. In some attacks he has bitten his tongue badly.

In right frontal bone, just over coronal suture and two inches from median line, is a slight depression of skull which is always and distinctly tender to pressure.

Operation by writer, Oct. 31st, 1903, at Carney Hospital. Ether. U-flap within the hair line. Trephine opening a little posterior and to outside the depression, which lay in the coronal suture. No depression of inner table. Normal tension and pulsation of dura. Opening enlarged forwards to include sensitive area. On turning back the dura the pia-arachnoid in this region appeared markedly opaque, edematous and at least $\frac{1}{16}$-inch thick. In the meshes were numerous grayish, opaque miliary nodules, tubercular in appearance. The largest of these were dissected off with the including membrane. Subdural exploration in the neighborhood failed to show any bony depressions. So far as could be told the lesion was confined to the region of operation. Pressure on the pia-arachnoid forced out the edema. The brain itself looked normal. Dura sutured loosely and the skin closed allowing for a rubber tissue drain. No shock.

SOME CONCLUSIONS BASED ON A STUDY OF ONE HUNDRED AND THIRTY-FOUR CASES OF CALCULUS IN THE URETER. WITH A REPORT OF THREE NEW CASES.

BY BENJAMIN TENNEY, M.D., BOSTON.

Case I. Reported through the courtesy of Dr. J. W. Elliott. Female, thirty years of age, previously operated on for gallstones and later for adhesions about the pylorus.

Sixteen days before entering the Massachusetts General Hospital she had a severe attack of pain in the region of the right kidney, extending down the right leg, not entirely relieved by a grain of morphine. The next day she passed bright red blood in her urine. Subacute pain was present all the time, and she was under the influence of morphine most of the time.

On examination some resistence and tenderness was found in the right flank. Urine was brownish-red in color and showed a slight trace of albumen, and the sediment contained considerable pus and red blood corpuscles.

The x-ray plate showed a shadow in what would be apparently the course of the right ureter, one and a half inches above the crest of ilium.

Operation, Feb. 5th, 1901. Patient on left side. Long incision across loin, dissection carried down to kidney. The kidney and ureter were exposed, and the ureter was found dilated about two inches below the pelvis. A calculus was felt at the lower end of the dilatation. Ureter cut and calculus removed. Ureter sutured with interrupted silk intestinal sutures. Wick of gauze left in for drainage.

Feb. 12, patient complained of blindness and had four convulsions. Passed 15 oz. of urine on the day previous with 6 grm. of urea. No vomiting — able to swallow. The patient became comatose and died during the day.

At autopsy — a hemorrhage was found under the capsule into a small cyst in the right kidney. Cavity in kidney showed no definite lining. Capsule adherent. Cortex 5 mm. thick, and pale. Renal calices and pelvis slightly dilated. Complete healing apparently taken place at point of incision in the ureter. No stones found anywhere. Left kidney showed a number of small cysts filled with a gelatinous straw-colored material. Renal substance presented no other lesion worthy of note.

CASE II. For the privilege of reporting this case, I am indebted to Dr. J. F. Thompson of Portland, Me.

Female, aged twenty-seven. Came to the Maine General Hospital in June, 1901. She gave a history of pain in the left side, paroxysmal in character, which began in the region of left kidney and extended down along the line of ureter into her pelvis. Pain had been present several months. Urine showed red blood corpuscles and an occasional white cell. There was also tenderness on pressure. Provisional diagnosis, stone in kidney.

At operation the kidney and pelvis were thoroughly explored and no stone found. The ureter was not examined. Capsule was slit and the kidney replaced without drainage. Pain was entirely relieved for several months, but returned.

She came to the hospital again in May, 1902, with severe pain in the region of the left ovary and very little pain in back. Hysterectomy was advised and performed by another surgeon, but no relief followed the hysterectomy.

Her attacks of pain continued till February, 1903, when the pain suddenly ceased, and within a few days she passed a calculus the shape of a beechnut, about one-quarter inch in longest diameter. Since then she has had no pain.

CASE III. Personal.

Female, thirty-six. Nurse. In 1893 a double ovariotomy was performed in Washington, D. C., after seven years of invalidism. The details of this I have not been able to get from the surgeon. Her recovery from the operation was slow, but she steadily improved until December, 1901.

In 1899 she had an attack of colic in the right side, which was supposed to be due to "congestion of the liver." December, 1901, she had an attack of renal colic in the left side, lasting from 8 A.M. till the next day, during a part of which she was delirious.

She had an attack in March, 1902, and again in August and November. Previous to the attacks of colic she noticed that she passed less urine than usual, and after the attacks there was always an increased quantity for twenty-four hours.

During the attacks the pain extended downwards into the bladder, but was never referred to any other location than the urinary tract. Nausea always followed the attacks. She usually had a time of "not feeling just right" for an hour or so before the colic began.

Following the attack of December, 1901, she had some hematuria. At time of examination, January, 1903, her urine was 1002, clear, and showed almost no sediment with the centrifuge, but there were a few epithelial cells and some red and white blood corpuscles. There was decided tenderness along the line of the left ureter, from the left of the umbilicus down. Vaginal and rectal examinations showed nothing abnormal except marked tenderness at entrance of left ureter into the bladder. An attempt was made to catheterize the ureters without anesthesia, but the posterior wall of the bladder was held back so that the orifices of the ureters could not be made out, even with knee-chest position. An x-ray examination was suggested, but refused by the patient. Provisional diagnosis — intermittent obstruction of the ureter probably due to stone. Operation Jan. 14, 1903. Dr. H. M. Chase assisting.

Incision posterior to border of external oblique. Kidney exposed — normal color and about double normal size. Walls of pelvis and of ureter decidedly thickened. No stone or other obstruction found within reach of hand.

The skin incision was continued downwards along the line of ureter and a second opening through the muscles made by separating their fibers over the point where the ureter crosses the iliac artery. The ureter was lifted up with the peritoneum, but quickly isolated by means of intermittent traction on the kidney through the upper opening.

Following the ureter from the upper to the lower incision the fingers met without discovering anything abnormal. Following the ureter into the pelvis, a nodule was felt an inch below the point of crossing the iliac artery.

After considerable manipulation the nodule was pushed up and followed along the ureter into the pelvis of the kidney, from which it was removed through a small incision. It was intended to pass a catheter through the pyelotomy wound into the bladder, but the ureteral catheters had been boiled, and it did not seem advisable to pass such ragged instruments, so the ureter was followed down with the fingers to its insertion in the bladder wall and no further obstruction was found. The pyelotomy wound was closed with a catgut suture. The lower abdominal incision was closed up solidly, and a wick of gauze was left in through the upper incision for drainage. The stone measures 1 cm. long, 8 mm. wide and 5 mm. thick. It is very rough and shows a groove on one flattened surface.

Seven hours after operation she was catheterized and four and a half ounces of smoky urine, with a large trace of albumen, was withdrawn.

Her convalescence was uneventful, except that on the 21st day she had a sharp attack of colic which lasted for about two hours and following this there was again a passage of smoky urine. No crystal was seen at this or any subsequent time. Her urine has been examined at least once a month up to July, 1903, and has shown neither blood or albumen since Feb. 22d.

In spite of the rarity of these conditions there is already a considerable literature on the subject. An article by Dr. Benjamin R. Schenck, in Vol. X of the Johns Hopkins Hospital Reports, closes with a very accurate table of 101 cases, nearly all of which have been verified from the original reports. To this list I have been able to add thirty-three cases, which appear in a table at the end of this article.

One very striking thing in connection with the detailed history of these cases is that a large proportion of patients had been previously operated upon for some other condition. In at least four cases gallstones were removed, in two cases operation was performed for extra-uterine pregnancy, in one case a variocele was operated on, in several cases appendices were removed, but the most frequent previous operation was ovariotomy. Probably very few of these were operations for mistaken diagnosis, as abnormalities undoubtedly existed in the organs previously approached, and yet this suggests the difficulty of diag-

nosis between the symptoms produced by an impacted ureteral calculus and certain other pelvic and abdominal conditions.

Seventy-four of these cases were females and fifty-eight males, the sex not being stated in two cases.

SYMPTOMS.

The suffering and shock from an attack of colic may be sufficient to produce vomiting, fainting, delirium, temporary paralysis of the intestines, and be followed by very great physical prostration, or it may be described as a discomfort or heavy sensation in the side. The pain is felt in the loin, in the pelvis, in the urethra, in the testicles, and, in one case, was referred to the inner side of the thigh.

Between the attacks there is usually a period of freedom from pain, which may last for a few hours or for months. The pain seems to come on when the urine is dammed up behind the stone, or when the calculus is moving from one location to another. Preceding the attack there is sometimes a period of discomfort, with a diminished excretion of urine, which the patient learns to recognize as a warning. Following the attack a polyuria amounting to some pints within a few hours may appear. These symptoms of an intermittent hydronephrosis are reported in many of the cases. There is nothing about the pain which in a single attack will surely differentiate it from some other abdominal conditions, but the history of repeated attacks of the same or similar character makes the pain and its location valuable aids to diagnosis.

Another symptom is the presence of blood in the urine. Tuffier [1] considers that red blood corpuscles in the urine after physical exertion, and a history of recurrent attacks of colic, make sufficient evidence on which to base a diagnosis of stone above the bladder. This condition of recurring pain with slight hematuria may persist for years without causing further symptoms. In one case the attacks of pain extended over a period of thirty years, but it is unlikely that a stone of sufficient size to produce real obstruction can remain so long without causing damage to the urinary tract above its location.

Most of the writers on this subject agree that the symptoms of stone in the ureter are not often to be distinguished from those of stone in the kidney. This seems to be especially true where the stone is located above the brim of the pelvis. With the stone located below this point, the pain is more apt to be referred to the bladder — sometimes to the testicle in the male and sometimes to the urethra in either sex.

LOCATION.

The location of these stones in the ureter has been in a general way in one of three places which correspond to the points of narrowing described by recent writers on the anatomy of the ureter.

The first point of narrowing is about 7 cm. down, the second just above or below the brim of the pelvis and the third as the ureter enters the bladder wall.

Henry Morris [2] and Byron Robinson [3] practically agree in giving the diameters of these three points of narrowing; the first being about 3.2 mm., the second 4 mm. and the third about 2½ mm.

The number of stones in this series of 134 cases caught in the different locations corresponds very nicely to these diameters — 35 being caught in the first isthmus, 18 in the second and 73 in the third. In the other cases the location is not definitely given.

DIAGNOSIS.

Guyon,[4] in a recent article, insists on the great importance of the recurring pain located on one side of the genito-urinary apparatus, coming on with a sort of aura for some hours before the real pain begins, and the hematuria, which is greater after exercise and less after rest. He is certain that neither the kidney nor the ureter is sensitive to the presence of smooth concretions which do not obstruct the flow of urine, and that some such concretions do reach the bladder without causing pain enough to be noticed.

Abdominal palpation seldom gives information beyond localizing the tenderenss on one side along the course of the ureter. In one case only has the stone been felt through the abdominal wall, and this in a very thin subject.

The presence of a tense or fluctuating tumor from hydro- or pyelo-nephrosis or hydro-ureter indicates an obstruction of some sort below such tumor which may or may not be stone.

Morris states that a calculus within two and a half inches of the bladder may be felt through the vagina, and through the rectum if within one and a half inches. Sometimes if a stone cannot be felt through the vagina or rectum, the presence of tenderness in the lower part of the ureter is of value, as indicating some trouble in the ureter higher up.

A stone may be felt in any part of the ureter after opening the abdominal cavity, and the diagnosis has been made in this way in fourteen cases.

The cystoscope gives information of value where the stone is impacted in the bladder wall or projecting into the bladder. When it is higher up, the ureteral orifice may be seen to be reddened and itself projecting into the bladder. In two cases the absence of the urinary jet from one ureter has led to the diagnosis of complete calculous obstruction.

The waxed bougie described and used by Kelley [5] of Baltimore may be of value, but has been little used in these cases. Guyon thinks the results of its use are dependent on too many conditions, and considers the sensation conveyed

[1] Tuffier: Appareil Urinaire. Duplay et Reclus; Traite de Chirurgie. 1899.

[2] Morris: Calculus in the Ureter. Lancet, Dec. 16, 1899; Surgical Diseases of the Kidney and Ureter.

[3] Robinson: Annals of Surgery. December, 1902.

[4] Guyon: Am. des Maladies des Org. Gen. Urinaire. July 15, 1903.

[5] Kelley: Journ. of the Am. Med. Assn. May 11, 1901.

to the fingers through a gum elastic catheter to be more trustworthy.

Without doubt the x-ray is a most valuable aid to diagnosis. It gave a shadow in fifteen of these cases, and no shadow in one. Noble [6] reports a case in which two negatives, taken by an expert at an interval of some days, showed a distinct shadow in the pelvis and in which no stone was felt at operation.

Kreissl [7] reports a case with the symptoms of calculus in the ureter and a shadow on the x-ray negative, in which the ureteral catheter from the bladder and a bougie passed downwards from the kidney, failed to discover any obstruction.

Examination of the urines from the two kidneys separately should give useful information in many cases, but the mechanical damage produced by the instrument or some other lesion in the supposedly healthy kidney may confuse the observer.

With all these aids to diagnosis, the fact remains that recurring attacks of colic referred always to the same side and with pain radiating downwards along the genito-urinary tract accompanied by hematuria, with usually a diminished quantity of urine before and during the attack and an increased quantity after the attack, are the most reliable indications of a stone impacted somewhere between the kidney and the bladder.

The exact location of a stone can often be determined by some of the methods given before operation, and if the stones were invariably single they would be very satisfactory, but it does not seem from the history of these cases, nearly 12% of which had more than one calculus, that we are justified in closing a wound made for the purpose of extracting a stone, without complete exploration of the pelvis of the kidney and the ureter by passing a full-sized ureteral bougie, or by external palpation of the ureter, or both.

NATURAL HISTORY.

Before considering the treatment of this condition it is worth while to consider what may happen without treatment. A calculus may pass into the bladder after some time, and may pass out through the urethra, or remain in the bladder to serve as a nucleus for a larger vesical stone. It is impossible to tell in what proportion of cases this occurs.

If the calculus remain in the ureter it may produce a hydronephrosis. Morris says that in 32 cases of hydronephrosis collected by Sir William Roberts a calculus was found in the ureter in 11, and in three more he considered the condition due to a calculus, although none was found. In five cases it was due to a stricture in the region of the vesical end.

The theory, advanced some time ago, that many cases of stricture of the ureter are due to the irritation produced by a previously impacted calculus, is interesting in this connection.

[6] Noble: Am. Med. Sept. 27, 1902.
[7] Kreissl: Medical Brief, St. Louis. July, 1903.

In another series of 18 cases of hydronephrosis, referred to by Morris, a calculus was found in the ureter in 11. Israel,[8] after detailing some experiments and some operative accidents, says that "clinically and experimentally a complete closure of the ureter will not produce a hydronephrosis, but a partial obstruction lasting for a long time will produce this condition."

Another result of the presence of a calculus in the ureter may be an acute pyelitis or pyelonephrosis. I have found no statistics bearing on this point, but at least 15 of these cases were operated upon for one or the other of these conditions.

The third and perhaps most serious result of letting nature take its course is complete cessation of the functions of both kidneys. Morris, in a collection of 47 cases of anuria with stone in the ureter, reports their location as follows:

Upper end of ureter	30
About middle	7
Lower end	10

He reports 9 others in which the stone was in the pelvis of the kidney.

He quotes Legueu's collection of 23 cases of anuria due to calculous obstruction of the ureter. The location of the calculus as found at autopsy was as follows:

Calculus at upper extremity of ureter	13
Calculus at some intermediate point	4
Calculus at the vesical end	6

He found 7 more with calculus in the pelvis of the kidney.

In the 21 cases of anuria which appear in the combined list of Schenck and myself, the stone was found

High up in	11 cases
About the pelvic brim in	3 cases
Low down in	4 cases
Not stated in	3 cases

These figures would indicate that the danger of anuria decreases after the calculus passes the first constriction and increases again slightly after the calculus reaches the vesical end.

Another possible result is the breaking through of the calculus into the abdominal cavity, or the retroperitoneal space, resulting, in the first case, in a general peritonitis, and, in the second case, in a retroperitoneal abscess. Two cases of the latter condition are reported.

These serious results which have occurred without surgical interference indicate that a calculus in the ureter can produce more disastrous consequences than even the frightful attacks of pain and periodic disability.

MORTALITY AFTER OPERATION.

Of these 134 cases of calculus in the ureter, 12 were relieved by proceedings which did not involve a cutting operation. The calculus was discharged through the urethra naturally or was extracted with forceps, or broken up with a lithotrite, after being pushed out of the orifice of the ureter.

[8] Israel: Chirurgische Klinik der Nierenkrankheiten.
[9] Freyer: Lancet. Aug. 29, 1903.

Of the 122 cases upon which a cutting operation was performed, 98 recovered and 23 died,— in one the result is not given,— and it has seemed interesting to ascertain the conditions preceding death in the fatal cases.

Eight were operated upon while suffering from total anuria and 3 from partial anuria, making a mortality of 11 deaths in 21 cases, or 52% operated upon for anuria.

Seven out of the 15 cases which were distinctly stated to be suffering from fever and pus in the urine at the time of operation died, making an apparent mortality of 47% in cases operated upon for pyelitis or pyelonephrosis. Probably there were more than 15 cases, but I have included only the cases in which these facts were distinctly stated.

In the 19th case the bladder was opened above the pubes and the ureteral orifice slit, opening into the general peritoneal cavity. "The patient became maniacal, passed no urine on the 12th day, died on the 13th; never had any fever, but extremely rapid pulse."

The 20th case died of uremia, and an autopsy showed a cystic degeneration of both kidneys.

The 21st case was under chloroform anesthesia nearly two hours, and showed fatty degenerated heart muscle at autopsy.

The 22d case had two hours' chloroform and ether anesthesia, and also showed fatty degenerated heart muscle at autopsy.

In the 23d case the cause and time of death are not stated. Of these 23 deaths a large proportion was unavoidable, whether the patient were operated upon or not. If we subtract the 21 cases of anuria and the 15 cases of pyelonephrosis or pyelitis, we have left 85 cases operated upon for stone in the ureter, apparently without grave complications, and in which the results are stated. In these 85 cases there were 5 deaths, giving a mortality of a little less than 6%. Even this mortality rate is higher than it will be in the future, as diagnosis will be made and operation performed before secondary changes have taken place in the kidneys and in the general system.

OPERATION.

As to the choice of operation, there are several things to consider. The transperitoneal route gives access to all parts of the ureter; it does not give opportunity for complete examination of the kidney or renal pelvis, and it does open the abdominal cavity to an extra source of infection. It has been but little used, and is partially responsible for one death. Only one writer argues in favor of this route, but neither his argument nor his figures are convincing.

On the other hand, the kidney and the whole extent of the ureter, including that portion which is in contact with the bladder, are quite as accessible extra-peritoneally as through the abdominal route.

According to the figures of these 134 cases, we may expect to find the stone within an inch of one of three definite points, but we ought not only to make sure of the removal of one stone, but to demonstrate the absence of others which might cause trouble later.

If a patient is sick enough to call for operation, and especially if operation is decided upon during the earlier attacks of colic, it seems to me that the kidney and its pelvis should be thoroughly explored, and the same incision which exposes them makes the first point of narrowing in the ureter accessible. If nothing abnormal be found through this incision, a full-sized ureteral bougie should be passed into the bladder. If obstruction be found, or if it seems desirable to follow the ureter down with the fingers, the incision may be extended as advocated by Israel, Morris and others, forward and downward to the outer border of the rectus muscle two inches above the pubes, and this incision may be carried straight through all the muscular layers down to the peritoneal fat in which the ureter lies. This cut is from twelve to twenty inches long, and crosses the upper half of the external oblique and upper two-thirds of the internal oblique and transversalis at right angles to their fibers. It must weaken the wall, and in one case at least has resulted in a hernia.

The other method is to make a new incision entirely separate from the one which exposes the kidney. This incision should correspond to the lower end of the long cut before described, and the center of the incision should come over the point where the ureter crosses the iliac artery.

After going through the skin the muscular layers can be separated by dissection between their fibers, and the ureter can be identified by gently twitching it from above. Once found, it is easily separated from the peritoneum, and the fingers passed through the upper incision can meet the fingers passed in through the lower. The ureter can now be traced along the wall of the pelvis and down to the point where it enters the bladder wall.

Some writers advise pushing the stone down into the bladder, but the small size of this constriction as compared with the upper isthmuses makes this suggestion difficult if not dangerous to carry out unless the orifice be already dilated. There is so little danger in taking the calculus through the ureteral wall that it seems wiser to remove it directly, with as little manipulation as possible, provided it cannot be easily pushed up to the most accessible point.

Extra-peritoneal ureterotomy has been done 34 times, with five deaths. Three of the five were suffering from anuria when operated; one showed cystic kidneys at autopsy; and the fifth had a dilated and fatty heart.

CONCLUSIONS.

Intermittent pain on one side, with varying amounts of red blood in the urine, are constant symptoms of stone in the ureter.

Though the best means of locating stones, the x-ray cannot yet give evidence *sufficient in itself*

to warrant us in operating or refusing to operate on certain cases.

If a calculus starts from kidney to bladder, it is likely to catch within an inch of one of three places, all of which are accessible to the surgeon through extra-peritoneal openings.

A single calculus is the rule, but the exception occurs, according to these cases, about once in eight times.

The opening in the ureter or kidney pelvis for removal of the calculus should be sutured if possible. Both sorts of suture materials have been used with equally good results, and wounds in both locations apparently heal equally well. The recovery is only delayed if sutures are not used.

A calculus in the ureter is a menace not only to health but to life, and its removal is an operation of low mortality, provided it is undertaken before secondary changes appear in the kidneys.

[10] Young: Am. Med., Aug. 9, 1902; Annals of Surgery, May, 1903.
[11] Cabot: Annals of Surgery, October, 1903.

	Sex and Age.	CHIEF SYMPTOMS.	Situation—How Recognized.	Character of Stone.	OPERATION.	RESULT.
Loumeau. Ann. des Maladies Genito-Urinaire, p. 1165. Aug. 1, 1903.	Male 64	Previous attack colic, ending in passing stones. Hard tumor in left flank appeared after left-sided colic.	Cavity filled with 5 liters yellow colorless fluid, was found communicating with a tear in renal pelvis. Ureter catheter showed a calculus low down.		Lumbar incision. Nephrectomy, ureterectomy.	Recovery
Brewer. Annals of Surgery, 1902, vol. xxxvi, p. 780.	Male 12	Pain in right side every two or three months, often with fever—seldom vomiting.	Tumor in right flank. No disease found by urinary examination.	5 months later stone was removed from prostatic urethra.	Nephrectomy with ureterectomy to brim.	Recovery
Deaver. Annals of Surgery, 1902, vol. xxxvi, p. 94.	Male 65	Severe abdominal cramp one week before. Severe pain in right flank, testicles and pelvis, with two days of anuria.	Tenderness in region of right kidney.	Stone near bladder found at autopsy.	Lumbar nephrotomy. Drain left in kidney.	Death in 3 days from uremia.
Ferguson. J. Am. Med. Ass'n, July 5, 1903.	Male 8	Anuria, renal pain on left side 35 days after right nephrectomy.	X ray shadow 2 inches down.	Stone later removed from bladder and urethra.	Nephrotomy, stone pushed up.	Recovery
Boldt. Am. Jour. Obstet. and Dis. of Women, Dec., 1903.	Female	20 years of ill-health with intermittent pain. Tumor in left flank.	Cystoscope did not show urine coming from left ureter. Calculus in upper portion.	Stone impacted, causing complete obstruction.	Nephrotomy, stone pushed up.	Not stated.
Suarez de Mendoza. Reported by Bazy, Ann. des Maladies des Org. Gen. Urin., May, 1903, No. ix, p. 673.	Female 58	Nephritic colic every 3 or 4 months for 7 years, right side. Four attacks of colic on left side, with diminished urine. Complete anuria 11 days.	Upper end; multiple; slight tenderness over normal-sized left kidney; right enlarged and tender.	23 mm. long, and size of last phalanx of little finger.	Nephrotomy. Right kidney sutured without drain.	Recovery
Tuffier. Semaine Med., Aug. 9, 1899, p. 265.	Female 36	Renal colic, right side; loss of flesh; red and white corpuscles in urine.	Low down.		Nephrotomy. Calculus pushed into bladder by catheter.	Recovery
Jacobs. Ann. de Gyn. et d'Obstetrique, Feb., 1903.	Female 44	Crisis of pain in left pelvis sharply localized. Each attack followed by 3 or 4 months purulent urine. After attack urine became clear. Pain had existed in left pelvis over 30 years.	Hard tumor felt high up in left pelvis.	Calculus of urates and phosphates, situated 3.9 cm. below pelvic brim, 7½ cm. long, 4 cm. thick and 3½ cm. wide. Weight 44 gm.	Transperitoneal ureterotomy. Suture.	Recovery
Mannierre. Chicago Med. Recorder, March, 1899.	Female 50	Pain in right side 8–10 years. Pus and blood in urine. Mass felt in region of kidney.	Two previous operations for renal calculus and persistent fistula. Below brim.		Extra peritoneal ureterectomy, low.	Recovery
Hawkes. Annals of Surgery, 1902, vol. xxxv, p. 519.	Female 33	Pain and hematuria 3 years before, followed by passage of small calculus. Six months later symptoms were supposed to be due to a chronic nephritis. Pus and alb. in urine.	Tenderness in lower abdomen. Mass felt per vaginam posterior and to right of uterus.	Stone found near bladder by laparotomy. Weight 158 gr., 2¼ in. long.	Extra peritoneal ureterotomy. Drained from loin.	Recovery
Freyer. Lancet, Aug. 29, 1903, p. 585.	Male 28	Hematuria, with recurring renal colic for 14 months, left side.	2 inches below kidney.	Size of date-stone.	Ureterotomy. No suture.	Recovery
Elliot.	Female 30	Renal colic, followed by hematuria next day.	Resistance—tenderness in right flank. X-ray shadow.	Stone 9x7x4 mm.	Lumbar ureterotomy. Stone felt 2 in. down. Ureter dilated above.	Death 8th day from uremia. Both kidneys cystic.
Noble. American Medicine, Sept. 27, 1902.	Male 35	Colic 2 years; blood in urine; pain in left kidney, testicle, bladder.	Below pelvic brim. X-ray shadow.		Iliac ureterotomy. Suture.	Recovery
Freyer. Lancet, Aug. 29, 1903, p. 585.	Female 18	Left renal colic with hematuria 18 months.	Para vesical; felt per vaginam.		Iliac ureterotomy. Silk suture.	Recovery
Young. Annals of Surgery, 1903, vol. xxxvii, No. 5, p. 704.	Male 25	Dull ache with times of acute colic, always on right side, for five years. Previous passage of calculus.	No tenderness; no tumor; less urea from right kidney; obstruction to ureteral catheter; x-ray shadow.	Stone 8x4 mm., pushed up from juxta vesical to iliac portion.	Iliac ureterotomy. Suture.	Recovery

	Sex and Age.	CHIEF SYMPTOMS.	Situation—How Recognized.	Character of Stone.	OPERATION.	RESULT.
Legueu. Bull. et Memoirs de la Soc. de Chirurgie de Paris, 1902, vol. xxviii, p. 1132	Female 37	Intermittent colic for 7 years with hematuria. Urine clear in the intervals. Left kidney and lower ureter tender.	Lumbar nephrectomy. Stone felt in pelvic part of ureter.		15 days later iliac ureterotomy. Stone close to bladder.	Recovery
Tenney.	Female 36	Recurring pain, recognized as renal colic, for 2 years. 10 years previously double ovariotomy.	Microscopic blood in urine, tenderness over lower end of ureter. Intermittent hydro-nephrosis.	Stone just below pelvic brim on left side. Stone rough, 10x8x5 mm.	Lumbar and iliac incisions. Stone pushed up and removed through pelvis of kidney. Suture.	Recovery
Stimson. Annals of Surgery, 1902, vol. xxxv, p. 518.	Female	Severe pain in lower part of abdomen.	Nodule felt in roof of vagina, apparently calculus in left ureter.	Small, slender stone, probably branched.	Suprapubic cystotomy and ureterotomy.	Recovery
Freyer. Lancet, Aug. 29, 1903, p. 585.	Male 43	Left renal colic, hematuria, frequent urination.	Cystoscope showed protrusion of left ureter.		Suprapubic cystotomy.	Recovery
Bishop. Edinboro' Med. Journal, 1899, i, p. 47.	Male 13	Vesical symptoms.	Projecting into bladder. Felt with stone searcher.		Suprapubic cystotomy.	Recovery
Newman. British Med. Jour., April 21, 1900.	Male 35	Colic for 3 years. Blood in urine.	Mass seen to project into the bladder. Cystoscope.		Suprapubic cystotomy.	Recovery
Newman. British Med. Jour., April 21, 1900.	Male 54	Pain in side and bladder. Blood in urine.	Mass projected into bladder. Cystoscope.		Suprapubic cystotomy.	Recovery
Le Filliatre. Ann. des Maladies des Organes Genito Urinaire, Feb. 15, 1903, p. 313.	Male 50	Vesical symptoms, pain, hematuria, pyuria.	Vesical and urethral stone found with metallic sound. Both removed by suprapubic cut.	Two weeks later more pain, and a second suprapubic section found a calculus 3½ cm. long, 3½ cm. wide.	Suprapubic cystotomy.	Recovery
Noble. American Medicine, Sept. 27, 1902.	Female 59	Frequent and painful urination for 9 years; blood and pus in urine.	Mass felt per vaginam near left ureteral orifice.		Suprapubic section ureteral orifice slit.	Recovery
Freyer. Lancet, Aug. 29, 1903.	Female 42	Left renal colic 2 weeks.	Felt per vaginam. Left ureteral orifice projecting.		Vaginal ureterotomy. No suture.	Recovery
Morris. Surg. Diseases of Kidney and Ureter, 1901, vol. ii, p. 470.	Female 28		Two inches above orifice left ureter. Vaginal touch.	Size of hazelnut, ends faceted.	Para sacral incision.	Recovery
Morris. Surg. Diseases of Kidney and Ureter, 1901, vol. ii, p. 470.	Female		Kidney and upper part of ureter previously removed for calculus disease.	Four calculi, each larger than dice.	Para sacral incision.	Recovery Died 4 months later probably from calculus disease of other kidney.
Wilcox. N. A. Jour. Hom., July, p. 428.	Male 47	Left renal pain.	X-ray shadow 2 inches above bladder.	Abdominal exploration showed nothing.	Stone pushed into bladder after locating the ureter extra peritoneally	Recovery
Newman. British Med. Jour., Apr. 21, 1900.	Female 26	Pain on right, blood in urinary sediment.	Orifice right ureter, red and projecting into bladder. Cystoscope.		Dilatation ureteral orifice per urethram. Stone 1 in. up.	Recovery
Newman. British Med. Jour., Apr. 21, 1900.	Female 21	Pain in back intermittent, hydro-nephrosis left side.	Probably at pelvic brim.	Size of lentil.	Massage t. i. d. for 9 days. Calculus passed into bladder.	Recovery
Thompson.	Female 27	Pain in left side, paroxysmal in character for several months.	Blood and occasional pus in urine.	Size of beechnut.	Kidney and pelvis thoroughly explored; capsule slit; ureter not carefully examined. Stone passed 20 mos. later per urethram.	Recovery
Perkins. Denver Med. Times, 1902, p. 481.	Male 22		Mass about right kidney found by laparotomy.	Stone ⅜x¾ in. passed later itself.	Lumbar nephrotomy. Stone passed after some weeks per urethram.	Recovery
Cabot. Ann. of Surgery, Oct., 1903, p. 503.	Male 57	15 years of intermittent pain in right lumbar region, extending to right groin — with blood in urine. 2 yrs. intermittent pain on left.	Probably low down. Had passed small stones. X-ray showed nothing. Anuria.	Three small stones, the largest crushed and evacuated later from bladder.	Lumbar nephrotomy, ureter stripped downwards; nothing found, but anuria was relieved and stones passed later.	Recovery

Clinical Department.

DECAPSULATION OF THE KIDNEYS.[1]

BY EDWARD REYNOLDS, M.D., BOSTON, MASS.

MY experience with this operation is still so limited that I have felt unwilling to publish it in any formal way, or to make any attempt to draw definite conclusions from it, but I am very glad to take this opportunity of reporting my cases as a contribution to a collective investigation.

My experience has been limited to four cases by my belief that, in applying a new and comparatively untried operation to clinical work, we are bound to be exceedingly careful in the selection of cases, and to recommend it only to the few patients to whose circumstances we believe it to be peculiarly applicable; but small as the number of cases is, they may be of some interest, from the fact that they were all operated upon at a comparatively early stage of the disease, that they were all subjected to careful study by segregation of the urines with ureteral catheters, both before and after operation, and that in three of them I am able to make a definite pathological report of the condition of the kidney, at the time of operation, from specimens taken during its performance. All four recovered, two may be called cured, and one relieved, while one is probably unrelieved.

I have been guided by a somewhat different theory of the operation from that advanced by Dr. Edebohls,[2] and have accordingly adopted a somewhat different method in its performance.

Most surgeons who are doing renal surgery have had more than once the unpleasant experience of cutting down upon, and perhaps into, a painful kidney to find it entirely normal, and most of us have had the pleasant experience of finding that in the great majority, if not all of these cases, the exploratory incision was followed by symptomatic relief. Some seven years ago I noticed that when such an exploratory incision was carried through the capsule and into the substance of the kidney, the edges of the capsule usually retracted widely, leaving a portion of the kidney surface exposed, as though the organ were too large for its capsule, *i.e.*, were subjected to tension by an overtight capsule; and I then came to the purely theoretical conclusion that the relief of renal pain by exploratory incision on to a kidney was probably due, first, to the separation of the capsule from painful adhesions to surrounding tissues; second, to the probable freeing of obstructed tubules by the handling and squeezing of the organ during the operation; and third, and to my mind most important, by the relief of tension due to the enlargement of the capsule after an incision in it, and hence that multiple incisions of the capsule might be indicated in renal pain. Further, my experience in renal surgery for other lesions has led me to notice (notably in tuberculosis) that when one kidney has been the seat of disease, the urine from the other has almost invariably shown casts and other evidences of irritation (I have studied all my renal cases by segregation of the urines with the ureteral catheters), and that when the affected kidney has been removed, the casts and other abnormal elements rapidly disappeared from the remaining kidney. This led to the reflection that since we know nephritis to be usually the result of an infection from above, occurring during the elimination of bacteria from the circulation by the kidneys, it is inherently probable that in the early stages, at all events, of chronic disease, the affection will be either limited to, or predominant in, one kidney, and to believe from analogy that if in such cases the worse kidney were relieved by operation, the recovery of the other would probably follow. These theoretical considerations have led to my operating, in the first place, by slashing the capsule in parallel lines rather than decapsulating it, and, second, to my having operated in each case on one kidney only, believing, first, that the patient thus incurred less danger and far less discomfort during convalescence, considerations of prime importance in operating upon cases in the early stages of the disease; second, that there was a probability of obtaining as much benefit from this procedure as from the double operation; and, third, that if the case were relieved, but not cured, by this method, it was a simple matter to operate upon the second kidney later. (It is interesting to note that in two of my four cases the disease was apparently unilateral and that both have been wholly relieved and restored to health, even if it is premature to call them permanently cured.) In three of the four cases I have removed a narrow slice of kidney substance during the operation and subjected it to microscopical examination, in the belief that the knowledge so obtained would be of the utmost value in determining the subsequent treatment and prognosis of the case, as well as in settling the question as to whether the other kidney should, or should not, be subsequently operated upon.

I will not trouble you with prolonged reports of my cases, but will report in each only the important features.

CASE I. Mrs. E., thirty-five; married. Father died heart and Bright's disease; mother, of sepsis; two sisters both well. Thin, in weak muscular condition, unable to work for two years, frequent headaches and disturbed vision, occasional edema of ankles, some frequency of urination, occasionally accompanied by pain. Oct. 21, 1902. Whole urine before operation: normal color, slightly turbid, acid, 1027, albumin slightest possible trace, urea 1.13%, sediment — much vaginal epithelium, some brown granular casts, some hyalin casts, some blood.

Catheter specimens: Left: One-third less in amount than in right, dark and smoky, brown granular casts, much normal blood, many epithelium cells, probably ureteral, rare hyalin cast. Right: Normal color, much normal blood and ureteral epithelium, no casts.

[1] Read at the Annual Meeting of the Suffolk District Medical Society, October 31, 1903.

[2] Compare with Dr. Gifford's experimental results.

Operation Oct. 30, 1902. Left kidney exposed, freed, capsule slashed, organ stitched in position and wound closed; no pathological specimen taken. Nov. 7. Rare granular cast. Nov. 11. No casts seen, slightest possible trace of albumin. Feb. 24. Four months — one hyalin cast found, albumin absent. March 6. No casts, no albumin. This patient has gained color, flesh and strength, and to-day (just one year after operation) seems wholly well; working.

Case II. Mrs. N., seen with Dr. P. M. Smith and referred to the Free Hospital for Women for operation. Thirty; married. Grandfather died of Bright's disease, one brother of phthisis twelve years ago. After diphtheria a year and a half ago she noticed an increase in frequency of urination and a great increase in the total amount of urine passed. She became subject to great general edema, vertigo and disturbed vision. These symptoms improved for a time, but recurred after the lapse of a few months. For seven months she has had a staggering gait and has been mostly in bed, with mild uremic symptoms.

Feb. 12, 1903. Urine on entrance: Total amount 1470 cc., normal color, flocculent sediment, urea 1.13%, specific gravity 1013, acid, total urea 16½ gm., sugar absent, albumin ¼ of 1%, indoxyl minus, total solids 44½ gm., sediment — vaginal epithelium, some pus, normal and abnormal blood, some free fat, occasional bladder cell, a few hyalin casts with fat, a few small round cells probably renal.

Diagnosis: Diffuse nephritis. Catheter specimens show both kidneys to be equally affected. Operation Feb. 26, 1903. Left kidney was selected for operation as a matter of convenience, the two organs being equally affected. The kidney was cut down upon, freed, the capsule slashed, the organ stitched in position. A thin section removed from the substance of the organ along the line of one of the slashes in the capsule was examined pathologically, and reported on as follows: Section from cortex shows everywhere a great infiltration of round cells and beginning connective tissue formations. The tubules have in great part disappeared, or are very much compressed by the invading connective tissue formation. In places there are round areas of round cells like local foci of inflammation. In some places convoluted tubules can be seen which show marked cloudy swelling. Many casts can be seen. The blood vessels show thickened walls. The glomeruli show hyalin change, many of them having become only shrunken hyalin balls. The interstitial element predominates. Diagnosis: Interstitial nephritis. It will be seen that this kidney was in quite an advanced stage of degeneration. Considerable increase in number of casts shown on day after operation. Amount of albumin becomes daily less.

March 4. 1/16 of 1%. March 10. Both kidneys same — 1/16 of 1%. The amount of albumin then decreases and averages from 1/16 to 1/16. Last report, May 15, albumin 1/16 of 1%, rare hyalin casts, with very small amount of fat seen. At the end of June she was pale and weak, but had no uremic symptoms. She has been lost sight of since. There appears to me to be every prospect that with long continuous care of her general health she may eventually recover. I have, however, classed her as relieved. It will be noticed that the kidneys were apparently equally affected and that the relief of symptoms followed a unilateral operation.

Case III. R. F., sixteen; single. Father, mother and two brothers all well. Patient at the Free Hospital for Women. Has been for a long time under treatment in the medical wards of one of our large hospitals and was discharged unrelieved. Is pale and weak, incapable of work or other exertion. Has much general edema, increased on any exertion or indiscretions of diet. Is subject to headaches, but has no other well-marked uremic symptoms. Appears to be a case in which the constitutional debility outweighs all renal symptoms and seems unfavorable for operation, but as the prognosis seems entirely unfavorable without it, and she is eager to have it done, is at least worthy of study.

Nov. 27, 1902. Examination of urine for a period of about two weeks upon entrance showed a great variation, depending somewhat upon diet, exercise, etc. Daily amount varied from 16 oz., with a specific gravity of 1024, to 79 oz. and a specific gravity of 1005. Total solids did not show a great variation, averaging about 30 gm. Albumin varied from a very slight trace to ¼ of 1%. Hyalin and finely granular casts, with fat adherent, varied greatly in number, being affected to a certain extent by diet.

Nov. 20, 1902. Ureteral catheter specimens showed both kidneys equally affected. Further trials with diet and rest showed more marked effect on condition of urine.

Operated upon December, 1902. Up to the time of operation the urine averaged 120 oz. daily and reached 165 per diem as its highest mark. The left kidney was selected as a matter of convenience, was freed and capsule slashed, and the organ stitched in position. Immediately after operation the amount of urine fell to 40 oz., from which it gradually increased. For two days after operation a very large number of hyalin casts, with fat adherent, were seen. For a month albumin continued about ½ of 1%, number of casts gradually growing less.

Jan. 8. After much ureteral pain patient passed a fibrinous membrane, containing leucocytes and cells, probably from the ureter. During January casts very much less, some days not appearing at all, albumin averaging ⅛ of 1% to 1/16.

February. Casts entirely disappear and reappear again the last of the month in considerable numbers, when the patient was allowed to be up. During March albumin showed great variation, varying from 1/16 to ⅛ of 1%. Jan. 20, 1903. Urine passed at home, patient up and about and probably living on ordinary home diet, showed condition of urine same as on entrance to hospital. Feb. 3, 1903. A specimen of urine was sent to Dr. H. S. Hewes, in whose care she had been about a year before, and he wrote saying that if he were to see this urine for the first time he should regard it as a case of interstitial nephritis, but in connection with the history would say that it suggested a general interstitial disease, with parenchymatous areas relieved by operation. The specimen removed showed under the microscope: "Frozen section. There is everywhere cloudy swelling and degeneration of the epithelium in the tubules. Casts can be seen in some of the tubules. In places a slight increase in the interstitial tissue can be made out. There is also some passive congestion. The glomeruli are not maredly changed, though more cellular than normal. Preliminary diagnosis — parenchymatous degeneration."

From that time to this the patient's condition has varied up and down, and she is to-day not in very different condition from that of a year ago before operation. The specimen sent to Dr. Hewes on June 20, 1903, showed both parenchymatous and interstitial disease present, and specimens examined by us since then have varied from absolutely no evidence of pathological up to the evidence of both forms of disease.

The operation cannot be regarded as having benefited the patient's condition, but it is fair to say that she was for a time much better, that she is unintelligent, and has persisted in living in a most unhygienic way.

CASE IV. Although it will be seen this case is not typically a nephritis, its history is so interesting in this connection that I have no hesitation in including it.

Mrs. B. C. Seen with Dr. C. A. Atwood of Taunton, Mass. Thirty-one. Has never been very strong since an attack of scarlatina in girlhood, but presented no renal symptomatology until she was attacked by hematuria in 1893. From this time on the hemorrhages recurred irregularly, but with increasing frequency, at first accompanied by pain on the right side, later by pain referred sometimes to one side, sometimes to the other. She became weak, thin, pale, was troubled with urinary frequency and more or less urinary pain. She had been supposed before I saw her to have tubercular kidneys, the diagnosis having been made by the discovery of bacilli in the sediment by a distinguished urinologist. Subsequent investigation on his part, however, convinced him that the bacilli found were probably imperfectly decolorized smegma bacilli, and several injections of the sediment of the urine into guinea pigs, with negative result, entirely disposed of the tubercular theory. The patient was examined with the ureteral catheters a number of times, both during the attacks and in the intervals, and I more than once saw blood flowing steadily from the ureteral orifice on the side on which the patient was complaining of pain. It became apparent that her symptoms gave definite evidence of which kidney was at the moment attacked. The urinary sediment always showed abundant brown granular casts, much organized debris and a great amount of crystals of oxalate of lime on the right side. The same elements were always present but in less degree in the specimen from the left kidney. In March, 1898, after three months of observation, I dilated three strictures, which had been found to exist in the right ureter, but the patient obtained no benefit, except from somewhat decreased pain in urination. Six months later, the symptoms continuing and the patient's general condition growing worse, I cut down (Oct. 28, 1898) on the right kidney, freed it from its bed, brought it to the surface, palpated it thoroughly, subjecting it to a great deal of manipulation and squeezing in the process, slashed the capsule in several places, and, at the request of her husband, himself a surgeon and present at the operation, removed a slice from the kidney for microscopical examination. It was examined by Dr. Wm. F. Whitney, whose opinion was that it showed merely the presence of granular degeneration. The patient made a rapid and favorable recovery, but three weeks after the operation, when about ready to go home, had a severe attack of pain on the right (the operated) side, terminating with the discharge of a very large amount of organized debris, resembling partially decomposed renal substance, on the exact nature of which no microscopist whom I consulted was willing to commit himself. The discharge of this substance was followed by a considerable attack of hematuria, lasting some hours. Following the operation the patient rapidly gained health and strength, and has to this day (just five years) led an unusually active and energetic life in the possession of apparently the best of health, presenting a most marked contrast to the increasing semi-invalidism which had been her condition before operation, and although four years from the date of operation she had a slight attack of hematuria, with pain referred to the left side, this has not been repeated and has been followed by no decrease of her excellent health. While she cannot be reported as finally cured, the operation has certainly yielded a most gratifying result of five years' duration, and it is also of interest that the single renal symptom which has occurred since operation was referred to the kidney which has not been operated upon, and which previous to operation had been making trouble at frequent intervals.[3]

In summing up my experience, I am led to the following rather tentative conclusions:

(1) We must admit that our present knowledge of the pathological physiology of renal disease is still defective, but we are justified in believing that nephritis has, as a rule, an infective origin, and probably that the defective renal drainage, due to swelling of the organ within a rigid capsule, plays a part in maintaining the disease.

(2) That the cases in which general uremic symptoms are more prominent than the physical signs obtained on the examination of the urine are unpromising cases for operation.

(3) That where the urinary signs and constitutional depression outweigh the distinctly uremic general symptoms, we may regard the cases as favorable for operation.

(4) That where one kidney is mainly or predominatingly affected, a unilateral operation upon that kidney offers an excellent chance of prolonged improvement in health, if not, indeed of ultimate cure.

(5) In women, in whom ureteral catheterization involves little trauma and less risk, all cases of chronic nephritis should be subjected to ureteral catheterization and the unilateral ones selected for operation.

This last of my conclusions is perhaps less tentative in its status than the others and may bear a little amplification.

It is, *a priori*, inherently probable that in this, as in other infective diseases, the affection is likely to localize itself in one portion of the affected organ, or in one of a pair of organs; but for this point we are not obliged to depend on the inherent probabilities. We know from well-established observation that one portion of the substance of the kidney is more likely to be affected in any given case than another, and we have in the last two years accumulated a considerable number of cases in which the disease was definitely known to be localized in one kidney only. We have seen not only in these cases of mine, but in others which have been reported here to-night, and still again in others previously reported in literature, that the unilateral cases may be expected to do well after operation.

I think we may safely conclude that the ureteral catheter furnishes the only method of segregation of the urine which can, as yet, at all events, be regarded as definite. The use of

[3] A report received while this was in press tells of several recent hemorrhages but good general health.

ureteral catheterization in men can hardly yet be considered to have been established as an easy and unimportant examination, but in women the use of the ureteral catheters is exceedingly easy, and may, I think, fairly be said to be non-injurious, since in a very large series of such catheterizations I have never seen an untoward symptom result.

I think, then, we may fairly conclude that in the present state of our knowledge every case of nephritis in a woman should be subjected to ureteral catheterization as soon as recognized, and that in any unilateral case in which the normal state of health is being decidedly and progressively lowered, we may conscientiously recommend the operation as affording a fairly definite prospect of relief to an otherwise incurable condition.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D.

(Concluded from No. 4, p. 96.)

A TABLE FOR KIDNEY OPERATIONS.

J. H. CUNNINGHAM, JR.,[17] describes a new table for operations upon the kidney and illustrates the use of such a table by three photographs. The contrivance is cheap and can be placed upon any operating table.

CATHETER STERILIZATION.

Goldberg[18] experimented with catheters infected by soaking them in purulent urine for one or more hours. Fluid antiseptics proved entirely unreliable, but a current of steam at 100° C. was effective. Sterilization was always readily and easily accomplished by boiling in water 5 to 10 minutes in a vessel longer than the instruments. He recommends soap and water washing before boiling.

Nancrede and Hutchings[19] find that the larger the size of the instrument the quicker the sterilization, and that preliminary flushing under a water tap lessens the time required for boiling by three quarters. Formaline vapor needs twenty-four hours in order to sterilize. English webbing catheters can be boiled indefinitely in a saturated solution of ammonium sulphate, provided the instruments are kept from contact with the bottom of the vessel. Ten minutes is not too long a time to boil the smaller instruments.

Casper[20] recommends a mixture of glycerine, water and tragacanth, with 1-500 mercury oxycyanate as an ideal antiseptic lubricant for catheters and sounds.

[17] Boston Medical and Surgical Journal, Nov. 26, 1903.
[18] Centralbl. f. Krankh. der Harn. u. Sex. Organe., xiii, 7–8.
[19] Journal of the Michigan State Medical Society, Detroit, June, 1903.
[20] Deutsche med. Woch., xxix, No. 46.

RENAL ANEURISM.

Ziegler[21] collected 19 cases of traumatic and 7 cases of nontraumatic renal aneurism. In the latter cases endocarditis with embolism or atheroma of the vessels was the cause. All the cases which were not operated died, while of the 4 cases operated upon 3 recovered.

QUICK STAIN FOR THE GONOCOCCUS.

Wahl.[22]

Concentrated alcoholic sol. of auramin 2 cc.
Alcohol 95% 1.5 cc.
Concentrated alcoholic sol. of thionin 2 cc.
Concentrated aqueous sol. of methyl green 3 cc.
Water 6 cc.

This solution is ready for use at once, keeps a year, and stains the cocci dark and the other elements in the secretion, a lighter color. It acts in five to fifteen seconds.

INSTRUMENTS TO MAKE THE PROSTATE MORE ACCESSIBLE WHEN ENUCLEATING THE GLAND THROUGH THE PERINEUM.

The instrument devised by Young[23] has two blades at its distal end. It is passed into the bladder through an external perineal urethrotomy incision, with the blades closed; they are then separated in the bladder and, traction being made upon the handle of the instrument, are brought against either side of the enlarged gland and forward toward the surface of the perineum. The prostate is thereby brought within easy reach for the subsequent manipulations required for its enucleation.

The same object is sought by the instrument of Lydston,[24] which is however of different form.

CALCULUS ANURIA. ITS DIAGNOSIS AND TREATMENT.

The following are some of the points with regard to the diagnosis and treatment of the above condition dealt with by A. T. Cabot.[25] It may be the result of the gradual disorganization and destruction of the kidneys in consequence of pyelitis and pyelonephritis, caused by the irritation of the stone, or it may be brought about by the stoppage of the ureter by a stone. The latter is the form properly known as calculous anuria. This condition is to be distinguished from other forms of anuria by its sudden onset and the absence of uremic symptoms in many cases. Sometimes death supervenes without uremic symptoms having occurred. The duration is, in some instances, very long. A case of Morris is quoted in which the anuria persisted for twenty days. Sometimes the condition is intermittent. Polyuria follows the cessation of the attack. When both ureters are blocked, the obstruction on one of the sides is usually of long duration, and the kidney on that side is already practically destroyed. In the other cases fatal suppression of urine has been known to follow

[21] Centralbl. f. d. Grenzgebeite, Jena, v, 23.
[22] Centralbl. f. Bakteriol., Jena, xxxiii, 3.
[23] American Medicine, Vol. v, No. 24, p. 947, June 13, 1903.
[24] Annals of Surgery, September, 1903, p. 359.
[25] Ibid., October, 1903.

upon the stoppage of one ureter, the kidney of the opposite one being comparatively healthy.

Morris does not report any cases of recovery in which the latter was brought about by the spontaneous escape of the stone into the bladder. The writer however suggests that the cessation of the anuria was due, in one of his cases, to the expulsion of calculi, very possibly brought about by manipulation of the abdomen in the renal region, and quotes two further cases in which spontaneous expulsion was followed by recovery. The reason given for the infrequency of spontaneous expulsion of the calculus in these cases is the absence of pressure from behind it, due to the completeness of the anuria.

In a series of 104 cases, 56 collected by Legueu and 48 by Morris,— treated expectantly,—there were but 26 recoveries — a mortality of from 72% to 80% following this plan of treatment. In many cases pain is absent, or slight and of very short duration. The article contains other points of interest and the reports of three of the writer's own cases.

THE REMOVAL, AFTER SUPRAPUBIC CYSTOTOMY, OF THE PROSTATE AND THE PROSTATIC URETHRA FOR SENILE ENLARGEMENT OF THE PROSTATE, WITH A SERIES OF TWELVE CASES.

The operation above mentioned is described thus by Moynihan.[26] Previous to opening the bladder 10 or 12 oz. of 1% carbolic acid solution is introduced into it. The viscus is then opened above the pubes, the left forefinger is introduced. A stay suture is passed through either edge of the bladder incision, and the latter are attached to the abdominal wound by them. These sutures are allowed to remain *in situ* for four days.

A snip is made into the mucous membrane of the trigone immediately behind the internal meatus of the urethra with a pair of sharp-pointed scissors. The tip of the finger enlarges this opening. Two fingers of the right hand are then passed into the rectum, the thumb is pressed into the perineum, and the prostate firmly held, while the left forefinger begins the stripping of the gland. The opening in the mucous membrane is enlarged until it completely encircles the internal meatus. The surface of the lobes is rapidly cleared, and finally the prostatic urethra is torn across at its junction with the membranous urethra, after the prostate has been entirely freed elsewhere. The enucleation is, as a rule, performed in from two to five minutes. The prostate, together with the prostatic urethra, is removed in one mass through the suprapubic incision. There follows the description of the twelve cases in which the author has performed this operation.

RESECTION OF URETHRAL STRICTURE.

Therman[27] describes four cases of stricture treated in this manner. In the first the stricture had originated in an injury of the urethra in its anterior portion seven years previously. The caliber of the stricture was 13 (French). Behind it was a diverticulum communicating with the urethra the size of a hen's egg. The stricture was resected, and a urethroplastic operation was done. The result was wholly satisfactory. In the second case a stricture admitting No. 21 (French) bougie was situated in the bulbous urethra. In this instance also it was of traumatic nature, and resection likewise yielded satisfactory results. The third patient had a stricture of No. 8 caliber in the perineal urethra, the formation of which was associated with a suppurative process of the urethra sometime previous to the operation. Resection and end-to-end suture secured a good result. The last case was one in which the operation was done six weeks after the receipt of an injury of the urethra by bullet wound, which resulted in a destruction of half an inch of the canal. Urethroraphy was followed by first intention of the wound and excellent recovery.

[26] Annals of Surgery, January, 1904.
[27] Centralbl. f. Chir., No. 46, Nov. 14. 1903.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY,

ANNUAL MEETING, OCT. 31, 1903.

DR. F. G. BALCH and DR. J. C. HUBBARD reported cases of

DECAPSULATION OF THE KIDNEY.

DR. A. T. CABOT: It is interesting to consider in the first place what influence for the better the operation exerts on the kidney.

Four ways occur to me in which the interference may exert a beneficial influence on the inflamed organ.

In the first place, the trauma of the tissues overlying the kidney acts in the way of a counter-irritant, and the local blood-letting doubtless assists somewhat in enhancing this effect.

Secondly, the manipulations necessary to free the kidney from surrounding attachments, and to bring it outside the body, produce a vigorous kneeding and massage of the organ. The kidney is wrung out like a sponge. May not this massage squeeze the casts and debris out of the tubules and thus clear the kidney of some of the clogging material that interferes with its function? I am inclined to think that we may find in this a partial explanation of the shower of casts which has been spoken of as appearing for the first day or two after operations.

Thirdly, we may have an improvement of the blood supply through the new connective tissue thrown out during the formation of a new capsule. It is in this way that Dr. Edebohls believes that the principal benefit of the operation is obtained; and Dr. Gifford's observations seem to show that for a time during the healing process some effect of this sort may be temporarily

obtained. That this, however, is not the only way in which the benefit is produced, is shown by the speedy improvement noticed in some of the cases; an improvement showing itself before we can suppose that any considerable collateral circulation has had time to form.

Lastly, we come to what I believe to be one of the most important effects of these operations upon the kidney capsule. This is by the relief of tension both by the splitting and removal of the capsule and by the direct blood-letting of the organ. This effect is produced when the capsule is incised without being stripped off, and it is also obtained in these cases where by a straight cut an opening into the capsule is obtained. Indeed, I have seen a very immediate relief of serious renal symptoms following an exploration with an aspirating needle, where a dram or two of urine was obtained, and where the operation consisted of a number of punctures through the kidney in various directions without incising the skin. The relief in these cases was as immediate as is sometimes seen by puncture of an inflamed testis, and I can only account for it by the relief of tension afforded by these numerous punctures through the capsule.

Now, in regard to the attitude which we ought to bear towards this operation. Every man who is doing much kidney surgery knows how often an acute or sub-acute inflammation of the kidney is influenced for the better by cutting down upon that organ. This improvement is noted sometimes in cases where the capsule is not split, or is opened only for a short distance. Being aware of this benefit obtained in acute cases, the next step made by many operators, but most strongly urged by Dr. Edebohls, was to apply this same treatment to chronic cases of kidney inflammation; to the cases, in short, grouped under the head of Bright's disease.

The cases enumerated this evening show that the operation thus applied is not dangerous, and that many cases show some improvement after it. It is to be remembered that in these operations, as in many others of doubtful utility, operators have thus far felt obliged to confine their interference to desperate cases. If, now, these cases in which the kidneys are already profoundly disorganized are helped in an appreciable degree by the operation, is it not reasonable to hope that by using it earlier, before the kidneys are changed beyond recovery, a restoration to something like a normal condition may be obtained? If this view is correct, and we come to believe that the operation has a power for good, and that in order to do good it should be applied while the kidneys have some possibility of recuperation left, it is plain that we must endeavor to study our cases so carefully as to be able to judge early whether a given case is likely to recover without operation or not, and if we decide that on the whole it is not likely to so recover, I feel that we are then justified in using this operation, which applied thus early in the disease would have practically no danger, and might have the greatest power for good.

Dr. F. C. Shattuck: One of Edebohl's statements was, to me at least, startling. The inspection of the living kidney showed Bright's disease to be, in some cases during a part of its course, a unilateral process. This contravenes post-mortem experience as well as our notions of the origin of Bright's disease in some general, usually toxic, influence. It is the rule that the early lesions of a generic poison are practically symmetrical. Pneumonia, it is true, is an exception. Further evidence on this point seems very desirable. As far as the cases reported to-night go, Edebohl's statement does not seem to be borne out.

I had hoped to get more enlightenment this evening than I have — to be enabled to estimate more closely the value of decapsulation for Bright's disease. The cases of distinct improvement reported this evening are few, and anybody of fairly long and large experience must recall cases alike of diffuse and interstitial nephritis which, after tedious and patient waiting, for no very clearly assignable cause, have turned the corner, made and maintained for years great improvement—amounting, indeed, to the disappearance of symptoms and the ability to lead a practically normal life.

That decapsulation is followed by this result in a larger proportion of cases than occurs without it remains to be proved.

More or less passive observation is harder to practice than active interference in these days of cleanly surgery. And yet it may be the wiser course.

Personally I do not as yet feel warranted in advising the operation in a patient who is fairly comfortable and apparently holding his own.

Dr. J. C. Munro said that he was disappointed in the final results of his cases, but felt that the operation was worth while, considering the desperate nature of the disease. It is important, if surgical aid is to be sought, that the cases should not be turned over to the surgeon when practically moribund, as was unfortunately the state of affairs in at least one of his cases. If, however, as Dr. Shattuck has suggested, the lives of a small proportion of apparently hopeless cases can for some reason or other be prolonged by medical treatment to as satisfactory a degree as by decapsulation, then it is questionable whether the operation is after all justifiable. He was not aware, however, that other physicians had had equally good success.

In reading a recent article by Dr. Thomson of New York, a very suggestive query was forced upon the speaker's mind, which he would like to make to any physiologist or internist present. Dr. Thomson spoke of the similarity between the effects on the circulatory system, etc., as caused by contracted kidneys and by the administration of adrenalin. On this basis it occurred to the speaker that possibly the beneficial effects from decapsulation might come from the disturbance inflicted upon the adrenal capsules in the efforts at delivery and decapsulation, thereby impairing their functions and lessening

the supply of their secretion to the general circulation. If this were possible or probable might not the same or better results be attained if we remove a portion of one or both capsules? He thought that this might be worth while doing in a case which would ordinarily be subject to decapsulation. He trusted that some physiologist present could enlighten him in this respect.

DR. PAUL THORNDIKE: The cases reported by Dr. Hubbard to-night have been mentioned in subsequent discussion as "unpromising." There certainly is a very marked contrast between these results and those of many other operators, but it must be realized that several of them were last-resort cases and were not fit subjects for this or any other surgical procedure. Dr. Edebohl has said that the only contra-indications for the operation are the impossibility of anesthetizing the patient and the improbability that the patient will live a month after operation, as it takes at least that length of time for improvement to take place. It seems to me that we have already considerable evidence to show that many of the most brilliant successes have also been immediate successes, and I believe the future will show that the best results will be obtained not in old last-resort cases when all else in the way of treatment has failed, but in those more recent cases where the inflammatory condition has failed to clear up under medical treatment and has persisted with enough urinary and other clinical evidence to make a distinct surgical indication. I therefore do not believe that Dr. Hubbard's series of cases should be considered as significant of the true value of decapsulation.

DR. HENRY JACKSON: If we except the brilliant results obtained in the cases reported by Balch, in which only one kidney was diseased, we find the most satisfactory progress in two cases, one reported by Balch,[1] one by Hubbard.[1] In each of these cases the probable clinical diagnosis was chronic diffuse nephritis. All acute processes as indicated by smoky urine, or blood in the sediment, could be eliminated in these two cases. From the results so far at our command in studying these cases I should be inclined not to favor operation in cases showing evidence of acute trouble. In fact, acute nephritis is especially amenable to medical treatment in most cases.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING, HELD AT THE PIEDMONT HOTEL, ATLANTA, GA., DEC. 15, 16 AND 17, 1903.

(Concluded from No. 4, p. 99.)

SYMPOSIUM ON APPENDICITIS.

DR. GEO. R. DEAN, Spartansburg, S. C., read a paper in which he considered it a surgical disease, outside of the pale of the physician, and when it was once discovered operation should be done at the earliest possible moment.

[1] Boston Medical and Surgical Journal, Jan. 28, 1904.

APPENDICITIS AND ITS RELATION TO PELVIC INFLAMMATIONS.

DR. J. M. BALDY, Philadelphia, Pa., expressed himself as being unable to follow the reasoning of those who adopted the practice of removal, on the ground that the condition of adhesion implied appendicitis or future danger of this disease. He did not agree with that class of surgeons who removed the vermiform appendix as a routine practice as a prophylactic measure. He thought 95% of the mixed class were in origin cases of pelvic inflammatory disease, and the adhesion of the vermiform appendix was a mere coincidence due to inflammation of contiguous serous surfaces, as was so commonly the case of adhesion of intestines in pelvic inflammatory diseases. His experience had led him to differ from those gentlemen who held that appendicitis generated pelvic inflammatory disease, or that pelvic inflammatory disease caused appendicitis. The two diseases were rarely associated, and only then as a coincidence. He was firmly of the opinion that the one never caused the other.

RETROPERITONEAL INFECTION A RESULT OF APPENDICITIS.

In a paper on this subject, DR. I. S. STONE, Washington, D. C., said it was our plain duty in certain septic cases to investigate the retroperitoneal space with the same care as the cavity of the peritoneum. First, one should consider every delayed case with anxiety, lest there should be retroperitoneal infection. Second, one should be careful to give a guarded prognosis in every case of appendicitis ushered in by or complicated by chills or any symptoms of sepsis. Third, if operating on such cases, one should consider retroperitoneal infection as already started, and act accordingly. The discovery and proper treatment of such infection was quite as important as the usual intraperitoneal techinque.

In view of the possibilities of retroperitoneal infection, the surgeon assumed great responsibility by advising non-intervention in appendicitis, and while one would often advise delay, when he believed the lesions were strictly intraperitoneal, yet it would appear to the writer that such a course is unsafe, and should be condemned when there was reason to fear complications.

SHORT INCISION IN APPENDICITIS.

DR. ROBERT T. MORRIS, New York, said the beginner in surgery was inclined to make incisions that were too short, rendering his work more difficult and very likely incomplete. The surgeon could not do good work, particularly in abdominal surgery, if he began his work with incisions that were too short. He could not do the best work if he continued to make incisions that were too bold or too free. After one had acquired a certain amount of skill in technique, he could return to the shorter incisions, which would allow the patient to escape with the least

possible length of incision. With long incisions there was more shock, more adhesions, because the exposure of the peritoneum through a long incision excited greater inflammatory reaction, and this resulted in more peritoneal adhesions, which must be disposed of, or which might remain, to make the patient lifelong trouble. The longer the incision, the greater the danger of infection from the aërial bacteria. With long incisions the patient's general resistance was interfered with. He would make this statement, however, that the surgeon should make as long an incision as he felt was necessary, and by no means be guided by the idea that he was to conform to any length of incision. If one could allow a patient to escape with a short incision, he should do so.

THE SIGNIFICANCE AND MANAGEMENT OF PARALYSIS OF THE BOWEL.

Dr. Geo. S. Brown, Birmingham, Ala., emphasized the views held by the surgeons of the past generation, that paralysis of the bowel in the presence of inflammation of the peritoneum was to be regarded, not as a pathological condition to be combated, but rather as nature's way of allowing the plastic exudate to form adhesions, the use of which was to confine the infection to as limited a field as possible. He held that it was not the paralysis, but the over-distention of the bowel, that should be fought. By following the plan of keeping the upper uninflamed portion of the bowel quiet, until the inflammation subsided, rather than attempting the difficult or impossible feat of waking up the inflamed and paralyzed portion by the use of purgatives, he believed many or the majority of the worst cases of diffuse peritonitis with which the surgeon had to deal would be cured. This rest treatment should be applied after the offending appendix or tube had been removed, and the infected site properly treated and drained. It seemed to him that if the Ochsner plan of treatment would tide over a patient with a gangrenous appendix, such a patient would have a much better chance if the appendix were removed, and to the Ochsner treatment were added the tight abdominal binder, with water to relieve thirst, and washing out of the stomach, if there was vomiting, together with opium *ad libitum*, to relieve pain and keep down peristalsis.

In a total experience of 90 cases of appendicitis he had had 66 pus cases, 24 of which had been treated by the plan of starvation, except as to water, prolonged irrigation of the stomach before leaving the table, a tight abdominal binder and opium. Eighteen of these patients had more or less diffuse peritonitis and 12 of these were so severe that they had to be extensively disemboweled in order that adhesions could be broken up and septic material wiped away. Two only of these died. They might have recovered had they been tided over without operation, but as they were both *in extremis* at the time, probably the only thing saved would have been the reputation of the surgeon. Of five other deaths occurring in the 90 cases, two were due to subdiaphragmatic abscess rupturing into the lung, one to regurgitant vomiting due to the presence of a large quantity of castor oil in the bowel which was not washed out, and two early cases where abscesses that had already set up a diffuse peritonitis were merely incised.

SEPTIC THROMBOSIS OF THE FEMORAL VEIN FOLLOWING INFLUENZA.

Dr. D. F. Talley, Birmingham, Ala., reported a case of septic thrombosis due presumably to influenza from which the patient was recovering when the phlebitic trouble arose.

FIVE RECENT SUCCESSFUL LAPAROTOMIES FOR GUNSHOT WOUNDS OF ABDOMINAL VISCERA, INCLUDING ONE WITH TWENTY-EIGHT PERFORATIONS OF INTESTINES AND MESENTERY.

Dr. Robt. W. Johnson, Baltimore, Md., read a paper with this title. The first case was one of gunshot wound of the stomach and liver; laparotomy, with recovery. The second, a gunshot wound of the liver; laparotomy, with recovery. The third was a gunshot wound of the liver; laparotomy; recovery. The fourth was a gunshot wound of the intestine; laparotomy; recovery. The fifth case was one of gunshot wound of the intestine, in which there were 17 perforations of the gut and 11 of the mesentery. The patient was a colored man, aged seventeen. A wound from a 32-caliber ball was found in the left side, just above Poupart's ligament, which, after washing, was found to go directly into the abdominal cavity. A median incision was made below the umbilicus and the belly found to be full of blood. Through this incision the gut was drawn out on to warm towels, and seventeen perforations of the small intestine and eleven of the mesentery were successfully closed by silk Lembert sutures. The patient had no setback after the operation, and was discharged well three weeks after the injury was received.

CASES OF INTESTINAL OBSTRUCTION TREATED BY RESECTION.

Dr. W. H. Doughty, Jr., Augusta, Ga., reported three successful cases of resection of intestine for obstruction due to gangrenous umbilical hernia, volvulus and intussusception respectively. One of the cases was rather unique, in that the strangulated loop of intestine in the hernia was a part of a greater segment which had been strangulated by volvulus. The descent of the herniated coil took place shortly after the occurrence of the volvulus, and its strangulation was occasioned by the congestion which followed the latter.

The almost invariable fatality which attended the operation he attributed to the toxemia which was induced by gangrene of the intussusception. In one case, in spite of the unmistakably gangrenous patches upon the intussusception and involving even the mesentery, the patient, though far from being in a satisfactory condition, stood

the operation fairly well, rallied promptly from the depression which attended it, and recovered without interruption.

FREE GROWTHS IN THE TUNICA VAGINALIS.

DR. EDWARD A. BALLOCH, Washington, D. C., reported the case of a colored boy sixteen years of age, who came under his care in December, 1902. Family and personal histories threw no light upon the case. There was no history of injury. Present trouble began eight years before, as an enlargement in the upper part of the right of the scrotum, which continued to grow painlessly from that time onward. Examination showed a scrotum reaching nearly to the knees and measuring twenty-one inches in circumference at its largest point. Both testicles and both cords could be made out and felt normal as to size, shape and consistence. There was no fluid in the scrotum, but a peculiar gelatinous, flabby feeling of the scrotal tissue. Three separate tumors were felt in the right side of the scrotum. The growths were freely movable in relation to the cord, testis and scrotal tissues.

The diagnosis of fibroid growths in the tunica vaginalis was based partly on the history of a slow, painless growth, and absence of ulceration and fistulæ, excluding cancer, syphilis and tuberculosis, and partly on the physical characteristics of the growths, together with a keloid behind the right ear, which was interpreted as indicating a tendency to fibromatosis in the patient.

Operation, Dec. 15, 1902, showed the tunica greatly enlarged and thickened and converted into a gelatinous mass. The upper tumor ran into the inguinal canal and was attached there by a pedicle. The other two showed no distinct points of attachment. All the tumors were enucleated and the thickened tunic removed. The testicle was removed accidentally in dissecting out the tunica. The tumors weighed 38 oz. and the tunica 20 oz. The specimens were shown.

The report of the pathologist showed that the growths were soft fibromata, with areas of fatty and myxomatous degenerations. The testicle also showed areas of beginning myxomatous degeneration.

The pathology of the condition was considered briefly, the conclusion being reached that the growths had their origin in the subserous connective tissue.

Examination of the literature showed but one case at all resembling the one reported, although there were several reports of minute fibrous growths on the tunic following hydrocele treated by the injection of iodine.

DR. J. MCFADDEN GASTON, JR., Atlanta, Ga., dealt with the complications encountered in the surgical treatment of disease of the testicle.

EXTRAUTERINE PREGNANCY.

DR. T. J. CROFFORD, Memphis, Tenn., reported a case and exhibited a specimen in which the gestation sac was so thoroughly developed and so strong, that it was enucleated without the loss of any blood. The sac was completely intact all around the fetus. The speaker supposed it to be a parovarian cyst, but after the sac was slit open the fetus was discharged.

COLLOID CARCINOMA OF THE RECTUM, WITH EXCISION BY THE COMBINED VAGINAL AND INGUINAL ROUTES.

DR. J. HORACE WHITACRE, Cincinnati, Ohio, reported a case of colloid carcinoma of the rectum which presented unusual pathological and clinical features. After giving a complete history of the case and describing the operation, the author stated that his chief reason for presenting it was the unusual nature of the primary tumor. He had never before seen a carcinomatous tumor of the bowel which had developed as a hard, uniform thickening of the entire circumference of the tube. The tumor involved the wall of the rectum to almost a uniform degree for six inches of its length, and the organ was transformed into a tube that might very well be compared to a flattened lead pipe with very thick walls. The tube was very rigid and noncollapsible when in a fresh state.

A second point of interest was the strong naked eye resemblance to tuberculosis. The minute bodies which were scattered over the pelvic peritoneum could not be differentiated from miliary tubercles. Large caseous lymph nodes were found in the hollow of the sacrum. The great predominance of fibrous tissue, the uniform involvement of a long segment of the bowel and the appearance of minute nodules resembling miliary tubercles in the primary tumor of the rectum all spoke for hyperplastic tuberculosis of the bowel.

A third point was the exceedingly rapid development of the solidly carcinomatous ovarian tumors from half a dozen minute miliary metastases on the peritoneal surfaces of each. These tumors were friable and almost jellylike, as were all of the metastases, whereas the original tumor was as hard as cartilage.

PNEUMATIC RUBBER SUIT.

DR. GEO. W. CRILE, Cleveland, Ohio, said that the pneumatic suit was constructed of a double layer of specially made rubber, which, when inflated, exerted a uniform pressure upon the surface, constituting an artificial peripheral resistance. It was so constructed that one or more limbs of the abdomen might separately or in combination be subjected to pressure by inflation by means of a bicycle pump. The air valves were so adjusted that the rate of decompression might be completely controlled.

Several cases were reported showing the value of the pneumatic rubber suit in shock and collapse.

RESUSCITATION OF ANIMALS APPARENTLY DEAD.

Dr. Crile also presented a short paper on this subject, in which he gave a summary of experi-

mental data. When asphyxia caused failure of the heart and respiration, vigorous artificial respiration usually restored their function when administered within a few seconds. It was effective in an inverse ratio to the time that had elapsed; it was rarely effective after forty seconds. By the addition of saline infusion a larger proportion of animals could be resuscitated after the lapse of a little longer time. Rhythmic pressure upon the heart, either through the thorax by pressure upon the ribs over the heart or direct pressure within the thorax was also an aid. The effect of the traumatism to the heart by the direct method partially counterbalanced the benefit from this measure. Nitroglycerine, alcohol and digitalis were useless; rapidly alternating the posture, head up, then head down, was not effective. Suspending the animal head down and making rhythmical pressure upon the heart was an effective method. This method gave the brain the advantage of gravity; it provided a moderate artificial circulation as well as respiration. It could be promptly applied. The addition of saline infusion increased the effectiveness of the method. Animals apparently dead for periods up to fifteen minutes were resuscitated by the combined effect of artificial respiration, rhythmic pressure upon the heart and the infusion of adrenalin. When the blood pressure had risen to 30 or more mm. Hg., the heart began to beat and the blood pressure was rapidly restored. The return of respiration was signaled by a short, almost imperceptible movement of the diaphragm, the respiratory action becoming gradually stronger and more frequent. The conjunctival reflex returned early. Some of the experiments failed on account of too great elevation of the adrenalin bottle; some on account of an overdose of adrenalin; several were only partially successful, owing to the great dilution of the adrenalin. Adrenalin, when injected directly into the chamber or into the wall of the heart, caused fibrillar contractions, after which the heart could not be resuscitated. After final cessation of the heart, by employing manual compression of the heart and infusing adrenalin, the blood pressure could be raised even higher than the normal. Respiration in some instances was partially restored.

Experiments in which saline infusion was substituted for adrenalin, and which were unsuccessful, were promptly successful on adding adrenalin. In a patient with crushed skull, whose heart had ceased beating for nine minutes, resuscitation of the heart for thirty-one minutes by this method was made. During the operation for the elevation of the depressed bone, the patient moved his head.

Another patient apparently dead from a severe crushing of the base of the skull was partially resuscitated twenty-four minutes after the apparent death. The proofs of the apparent death were absence of respiration, absence of heart sound on stethoscopic auscultation and, as a final proof, on opening the jugular vein there was absolutely no circulation. In this case the blood pressure rose to 80 mm. at one time; voluntary respiration appeared. These evidences of vital action continued for thirty-four minutes.

OFFICERS FOR THE ENSUING YEAR.

The following officers were elected: President, DR. FLOYD W. MCRAE, Atlanta, Ga.; First Vice-President, DR. GEO. S. BROWN, Birmingham, Ala.; Second Vice-President, DR. J. SHELTON HORSLEY, Richmond, Va.; Treasurer, DR. CHAS. M. ROSSER, Dallas, Tex.; Secretary, DR. W. D. HAGGARD, Nashville, Tenn.

Birmingham, Ala., was selected as the place for holding the next annual meeting; time, Dec. 13, 14 and 15, 1904.

DR. JOHN D. S. DAVIS, Birmingham, was selected as the Chairman of the Committee of Arrangements.

The Council reported that the former action of the Association in appropriating two thousand dollars to a memorial, consisting of a ward bearing the name of the Association in the City Hospital of Birmingham be rescinded, and that in lieu thereof two thousand dollars be appropriated to the erection of a monument to the memory of Dr. W. E. B. Davis in Birmingham.

On motion of the Council, the report was adopted.

Recent Literature.

Lessons on the Eye. By FRANK L. HENDERSON, M.D. Third edition. Philadelphia: P. Blakiston's Son & Co. 1903.

This little book contains about two hundred pages of text which have been so divided into twenty-eight chapters as to provide one lesson for each week of a seven months' course. The author's intention has been to place in the hands of the undergraduate student a means of equipping himself for the later demands of a general practice, and with this purpose in view has described only the commoner conditions of the eye, relegating to the domain of post-graduate instruction ophthalmoscopy and kindred subjects. As it has reached the dignity of a third edition one may naturally infer that the book enjoys a certain popularity with the undergraduate, for whom it is intended, and therefore the author may be considered as having succeeded in his endeavor. As a rule elementary books of this character are of extremely doubtful value, for it seems safe to say that the intellect of the average medical student may safely meet the demands put upon it by any of the standard textbooks on ophthalmology of the present day. In the present instance the subject has been presented with such good judgment, and the appearance of the book is so pleasing both as regards press work and illustrations, that it is to be hoped a careful reading of this book will stimulate to farther effort along similar channels.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, FEBRUARY 4, 1904.

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MEDICAL INVESTIGATION IN THE PHILIPPINES.

WE have recently commented on the admirable work being done under the general auspices of the government in investigating disease peculiar to the tropics. From this work it appears clear, for example, that the condition produced by Trypanosoma has been placed upon a definite basis, and has formed the starting point for a series of wide-reaching investigations on analogous affections. Such diseases may only be studied in their native habitat, and it is therefore of much importance to medicine in general that competent men may prosecute their studies on the spot rather than indirectly, and with poor facilities, at a distance. Furthermore, it is evident that the field now opening in the study of the protozoa and other similar organisms offers a peculiar opportunity for young men of capacity who find small scope for their energies at home.

We are interested in noticing in view of these facts that the Harvard Medical School, under the general supervision of Dr. W. T. Councilman, aided by a small fund contributed by several interested and generous donors, has recently sent two men of the Pathological Department, Drs. W. R. Brinckerhoff and E. E. Tyzzer, to the Philippines for the purpose of investigation into infectious diseases. It will be remembered that these physicians assisted Dr. Councilman in his work relating to smallpox, and it is primarily to study further the life history of the causative parasite of that disease that the journey has been undertaken. It is evident that means of experimentation will there be very much greater than in this country, and that the possibility at least exists of determining definitely the susceptibility of certain of the monkeys to the disease and the means of its transmission. It is, however, stated that, although this will be the main object of study, the study of tropical disease in general will also form a part of the work undertaken.

This plan of sending properly equipped medical men to the Philippines cannot be too highly commended. It is inevitable that, with the closer relationships existing between tropical and temperate countries, which the future is sure to bring forth, any knowledge leading to a clearer appreciation of the nature of diseases peculiar to warm countries will be of increasing value to the inhabitants of temperate regions. Apart, also, from this somewhat selfish point of view, it is eminently desirable that the fatal and widespread affections of the tropics should be checked. This certainly can only be done by the application of scientific knowledge already gained to the further problems which these highly infectious diseases present.

INSANITY AMONG NEGROES.

OUR attention has been called by Dr. W. F. Drewry of the Central State Hospital at Petersburg, Va., to the fact that in our issue of Jan. 7 we commented erroneously on the question of insanity in the negro. In this editorial on the "Distribution of Insanity" we made the statement that, "in the South the negroes are proverbially relatively exempt from such affections, [mental disorders]." Dr. Drewry has for many years been connected with a hospital devoted to the care of insane negroes, and is therefore eminently able to judge of the existing conditions.

In his report for 1903 Dr. Drewry states that from best available information insanity as well as tuberculosis was comparatively unknown among negroes before the war. In 1860 only 25 insane negroes were in the State Asylum at Williamsburg. Ten years later 123 negroes were reported in the state. To-day there are 1,074. In 1860 the ratio of insane negroes to the negro population was 1 to 7,000; in 1900 it was 1 to 640. From 1890 to 1900 the number of first admissions reached 1,512, being a yearly average of 125. From Oct. 1, 1900, to Oct. 1, 1903, 745 cases, or an average of 248 a year, were received. The reason given for this increase is, in general, race degeneration. During

the days of slavery it is maintained the negroes were under strict discipline, lived in clean surroundings, were subject to greater moral control, led systematic, regular lives, and in general were surrounded with conditions which conduced to both physical and mental health. Since emancipation Dr. Drewry asserts that various dissipations, vices, bad habits, irregular living, indolence, privation, etc., have led to a weakening of the negro constitution, and therefore to a natural development of disease, such as insanity and consumption.

With all due respect to Dr. Drewry's opinion, and to his unquestioned means of judging the situation, we are inclined to think he has at least put the case strongly in asserting that the difference between the negro's life before and after the war may be held wholly responsible for this increase in insanity. As we remarked in our previous editorial, the varying conditions underlying the production of mental disorders are far too subtle to permit of general statements. We are nevertheless much interested in Dr. Drewry's point of view and are glad to make the correction which he suggests regarding the prevalence of insanity in the negro population.

PARALYSING PARSIMONY.

When the appropriation of $8,000 asked for by the Massachusetts State Board of Health for the annual maintenance of its antitoxin and vaccine plant for 1904 was brought up for action in the Senate last week, the chairman of the Committee on Public Health opposed the appropriation, and moved that the latter be reduced to $6,500 — on the ground that the latter sum had been estimated as necessary for such maintenance.

This estimate was made in June, 1902, a year and a half ago, for the production of vaccine alone at a time when the Committee on Public Health succeeded in delaying action on the whole matter for another year, notwithstanding the prevalence of an epidemic of smallpox, such as had not been known for thirty years. Upon revising its estimates, and going over the whole question again, the State Board of Health found it impracticable to carry on the work of producing antitoxin and vaccine for the sum which had been named for the production of of vaccine alone.

It should be borne in mind that the board has saved to the people of the commonwealth from $75,000 to $100,000 per year by the production and free distribution of antitoxin alone.

To the physicians of the state it must appear strange that the health interests of the community are better served by the Committee on Appropriation than by a committee which was perhaps constituted for the purpose of assisting in the protection of the public health.

THE MULTIPLICATION OF SCIENTIFIC JOURNALS.

It is rare for a month to pass that men of general scientific attainment are not requested to subscribe to a new periodical. This is perhaps particularly true of journals relating to medicine, but a like activity is apparently being manifested in allied branches of science. The reason for this extraordinary multiplication of journals is not far to seek. It depends primarily upon the progress of specialism and upon the somewhat natural desire which each individual group of men has to present its researches in a form and place where they will receive the most sympathetic attention. On the medical side there is hardly a branch of medicine which in any way may lay claim to the title of a specialty which has not its own organ. In one sense this is no doubt a step in advance, but we can easily see that this continual multiplication of journals will in time lead to a reaction.

In the first place the greater the number of journals the less the number of subscribers, and the more demand for an independent fund by which they may be supported. A considerable number of journals is already independent in this respect, and may continue to publish papers irrespective of any possibility of adequate financial return. Others are not so fortunately placed, and the constant and somewhat wearisome appeal for support as a duty which we owe to science in general is becoming a trifle obnoxious.

A further difficulty which every periodical now has to face, as never before, is the question of the reproduction of photographs and drawings, often in colors of most elaborate character. Here, again, a reaction is inevitable. We have been interested, for example, in the last journal which it is proposed to launch, a *Journal of Zoölogy*, to note that in the prospectus it is stated that illustrations designed for publication be made as simple as possible and colors be avoided unless absolutely necessary. We have no inclination or capacity for prophecy, but nevertheless we are inclined to think that a greater

concentration of effort in a few journals, at least for the present, and less dissipation of energy in many would conduce to our greater scientific health.

MEDICAL NOTES.

THE BALTIMORE TUBERCULOSIS EXHIBITION. — During the past week a Tuberculosis Exhibition has been held in Baltimore in McCoy Hall, which excited much interest.

TYPHOID FEVER AT COLUMBUS, OHIO. — Since Jan. 1 nearly 600 cases of typhoid fever have been reported from Columbus, Ohio. The source of the disease is claimed to be contamination of water.

BEQUEST TO JOHNS HOPKINS HOSPITAL. — It is reported that Mr. Henry Phipps has given $20,000 to the Johns Hopkins Hospital for the purpose of establishing a separate out-patient department for persons suffering with tuberculosis.

GERMS IN BOOKS. — It is reported that the municipal authorities of Berlin are about to undertake to exterminate microbes in the books of public libraries. This possible source of the spread of infection has long been recognized and, we believe, in certain cases demonstrated. The attempt is to be made to disinfect all books after use, by means of a municipal disinfection station.

THE ALBANY MEDICAL ANNALS. — The current number of the *Albany Medical Annals* celebrates the beginning of the twenty-fifth year of this excellent periodical. A sketch of the history of the journal, founded in 1880, is given by Drs. F. C. Curtis and W. G. Tucker, in which the growth from small beginnings of a periodical, which is now representative of the medical work of its city, is briefly portrayed. The volume contains 208 pages with a number of excellent articles. We congratulate the journal on this, the beginning of its twenty-fifth volume.

PROGRESS NUMBER OF THE INTERSTATE MEDICAL JOURNAL. — The *Interstate Medical Journal* of St. Louis published in its January number, as has been its recent custom, an epitome of the important medical literature of 1903, included under twelve headings. As a summary of the best work done during the preceding year it should be of service to those whose time is too limited to consult the original sources, and these are certainly many.

BULLETIN OF THE AYER CLINICAL LABORATORY. — The Ayer Clinical Laboratory of the Pennsylvania Hospital has issued the first number of a bulletin, the publication of which is provided for by a fund given by Mr. F. F. Ayer. The bulletin will appear whenever sufficient material accumulates from the work done in the laboratory. The principal paper in the present issue is an elaborate article by Dr. Longcope on "The Pathological Histology of Hodgkin's Disease."

THE DEATH OF FRIEDRICK JOLLY. — The death of Professor Friedrick Jolly is announced. He was born at Heidelberg in 1844, later held chairs at Würzburg and at Strasburg, and on the death of Prof. Westphal was called to the important position of Professor of Psychiatry and Neurology in Berlin, a position which he held up to the time of his death. Professor Jolly contributed widely to medical literature in his special branch, but was never so prolific a writer as certain of his colleagues.

CENTENARIANS. — The following persons are said to have lived beyond the one hundred year mark:

Mrs. Sallie R. Higgs died in Owensboro, Ky., at the reputed age of one hundred and nine years. She was married at seventeen, had twelve children, the youngest of whom is now seventy-one years old.

Mrs. Catherine K. Steele of Lyndeboro, N. H., died Jan. 24, at the age of one hundred and two years. Beyond a slight deafness she was without physical infirmities at the time of her death.

Mr. Caleb Thorpe, supposed to have been the oldest living veteran of the Civil War, has recently died at the age of one hundred and three in Millersburg, Ohio. He leaves a widow who is reputed to be one hundred and one years old.

BOSTON AND NEW ENGLAND.

A PRINTERS' STRIKE. — Owing to a strike among the printers the publication of the JOURNAL this week has been unavoidably delayed. We ask the consideration of our readers for this delay and also for any typographical errors that may occur.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Feb. 3, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 32, typhoid fever 2, measles 151, smallpox 0.

Salt on Sidewalks and Streets. — The extreme rigor of this winter's weather has induced the Boston Board of Health to relax somewhat the enforcement of its regulations against the free use of salt on sidewalks and streets. But the practice has been resumed with such recklessness, that the board has been forced to remind citizens and corporations of the existence of the ordinance and of the deleterious effects on health of the well-known slushy freezing mixture.

Ingersoll Lecture for 1904. — It will be of interest to the medical profession to learn that this year the Ingersoll Lecture of Harvard University will be delivered by Dr. William Osler of the Johns Hopkins Medical School. This lectureship was established in 1893 with the proviso that each lecture should deal with some aspect of the general subject of the "Immortality of Man." Previous lectures have been given by Professor James, Professor Royce and the late Mr. John Fiske. The question has not hitherto been discussed from the physician's standpoint, and will, no doubt, excite particular interest on this account. The announced subject is "Science and Immortality."

Bequest to the Lowell General Hospital. — Mr. Frederick Ayer has given $50,000 to be used exclusively for the construction of a building in connection with the Lowell General Hospital. The first floor is to be devoted to women and the second to men, with accommodations on each floor for from twelve to fifteen patients. A maternity department will be connected with the building.

The Boston City Hospital Alumni Association. — The Alumni Association of the Boston City Hospital will hold its annual meeting at Young's Hotel on the evening of Wednesday, Feb. 10, at 6 o'clock. Dinner will be served at 6.30 o'clock, immediately after the business meeting. Dr. Charles P. Bancroft will preside. The hospital will be open to the members during the day. Ward visits, medical and surgical, and operations in the amphitheater (10 to 12.30) will be followed by luncheon in the hospital library.

NEW YORK.

Medical Society, State of New York. — On Jan. 28 Dr. Hamilton D. Wey of Elmira was elected President of the Medical Society of the State of New York and Dr. Joseph D. Bryant of New York, Vice-President. Drs. F. C. Curtis and O. D. Ball of Albany were re-elected as Secretary and Treasurer respectively.

Superintendent of Hospital in Korea. — Dr. Edward de Mott Stryker of Raritan, N. J., has started for Tabowie, Korea, to take charge, for three years, of a hospital which has just been established there by the Oriental Consolidated Mining Company.

Diphtheria Antitoxin for Chicago. — The Health Department has recently made a shipment of diphtheria antitoxin to Chicago, in response to a request from Dr. Reynolds, Commissioner of Health there, who stated that on Jan. 15, when bids were received for the ensuing year, the three manufacturing firms bidding for the furnishing of the supply doubled their prices. Health Commissioner Darlington has announced that if it is necessary in the interest of the poor, the output of the department's laboratories will be doubled, trebled or quadrupled, so that all the cities in the country may secure antitoxin at a reasonable rate.

A Delayed Verdict. — On Jan. 28 the Court of Appeals at Albany affirmed a verdict of $4,500 damages against the Delaware, Lackawanna & Western Railroad company in favor of Ellis R. Williams, who while serving as a brakeman in the employ of the company was injured on July 8, 1882. In the meantime the case has been tried no less than six times. It is believed that the loss to the company, including costs, will amount to $7,000.

Miscellany.

AMERICAN NEUROLOGY OF TODAY.

We print the following from the response to this toast by Dr. G. L. Walton, at the celebration of the Twentieth Anniversary of the Philadelphia Neurological Society, Jan. 27, 1904.

Twenty years ago, from each of the principal cities, a pitiful little group of sad-faced scientists gathered yearly in New York, to find mutual encouragement in pursuing a specialty which gave them at home the reputation of being rather persistent cranks who lacked the aptitude to deliver a child or amputate a limb, and who had the curious taste to prefer the study of physiology to the practice of medicine.

Neurological practice consisted largely in pushing the plodding pole and the painful Pacquelin up and down the backs of such chronic cases as were referred by other practitioners, who had exhausted their own therapeutic imaginations. The remainder of the neurologist's time was largely occupied by listening to the tale of the hypochondriacal and the ideo-obsessive psychopath, who goes from office to

office with preconceived and unshakable diagnosis of his own case, in the defence of which he exhibits enough argumentative skill, and prepares sufficiently voluminous briefs, to make a fortune in court, but who is generally unable, or if able, unwilling, to pay for the unsuccessful ministrations of his long retinue of medical advisers.

The professor of clinical medicine taught a few nervous diseases of fairly well-known pathology and a few with an imaginary pathology, like that peculiar form of myelitis whose foundations were laid in emotional excitement and whose development was induced by sleeping on the damp ground, bodily over exertion, and sexual excess. [1] Where there was a chair of neurology, its occupant was allowed to exercise his vagaries for the amusement of such exceptionally inquisitive students as possessed a childlike desire to know what was on the inside of the skull and vertebral column, those legitimate boundaries of anatomical research whose contents were made known to the general student by anatomical plates, from which he could learn little more of the spinal cord compared to what he is taught to-day, than he could from cross sections of a Pittsburg stogy.

Nor were extensive opportunities for anatomical and pathological study of the nervous system offered at that time even by those who pursued this branch, either in this country or abroad. The only opportunity I found in Leipzig in 1881 for neuro-pathological study was the privilege of setting up my microscope alongside that of Strümpell in Cohnheim's Laboratory, helping myself to pieces of his spinal cords, and extracting such information from him as my modesty allowed me to request. This was, in fact, a golden opportunity, to which, I fear, I did not half do justice, but except for that fortunate chance I should have been completely at a loss.

American as well as foreign neurology of to-day offers marked contrast with this picture. Neurology is now generally accorded a dignified and respected place, not only in the curriculum of the school, but by the medical practitioner. The neurologist is not only regularly consulted by the surgeon regarding the advisability of operation on brain, cord or peripheral nerve, and by the physician on obscure neurological cases, but his opinion is given weight by both surgeons and physicians and by other specialists in those obscure disorders, whether of nutrition, of motion, or otherwise involving organs outside the nervous system which baffle diagnostic skill.

The pathological work has advanced meantime with equal or greater rapidity. The second-year students in the Harvard Medical School now spend every day for a month examining pathological and healthy specimens of cord and brain, both macroscopically and microscopically, and by the time they take the fourth-year elective they are able to keep some of us guessing, and in their turn instruct the instructor.

The pathological material the student sought in vain twenty years ago, even on the Continent, he may find to-day in the laboratories of the various general hospitals, and in even greater profusion, and more extensively studied, in the hospitals for mental disease. An example of this advance was given only a month ago in this city, in the remarkable demonstration of neurofibrils, prepared in the Shepard and Enoch Pratt Hospital at Baltimore.

From the numerous instances of neurological advance in pathological diagnosis, I need only mention the monograph of Roberts on "Wasting Palsy," published in 1858, in which he describes amyotrophic lateral sclerosis, and states that the cord in this disease shows no characteristic changes either macroscopically or microscopically. As an instance of therapeutic progress let me remind you that even twenty years ago the surgery of the nervous system was in its infancy.

The present status of the pathological diagnosis of nervous diseases offers marked contrast to that of the comparatively recent date cited, when spinal diseases were classified only by their symptoms

Drug therapy in neurology, in spite of various experiments, is much the same as twenty years ago, except for certain modest but useful acquisitions, like the coal tar products and the thyroid extract; but the armamentarium of the neurologist has been materially increased of late by the development of a system of rational hydrotherapy and other forms of physical therapeutics.

Cerebral and spinal surgery, thanks largely to the neurologist, has now reached so high a scientific plane that its limitations are due to the serious nature of the diseases themselves, not to lack of knowledge on the part of the neurologist or technical skill on that of the surgeon.

While his fellow practitioners are awakening to the importance of the work of the neurologist, he, in his turn, is becoming more and more keenly alive to the importance of keeping, as far as possible, in touch, not only with allied branches, such as psychiatry and comparative neurology, but also with the deductions to be drawn from blood examination and blood pressure, cytodiagnosis and the relation borne by the ductless glands to psychic and somatic life, to say nothing of modern bacteriological methods and the recent investigations in physical chemistry, which seem almost on the verge of initiating us into the mysteries of the nervous impulse itself, and the meaning of myelinization.

I thank you, Mr. President and gentlemen, for the honor of addressing you and for the great pleasure of meeting you to-night. I bear the greeting of my colleagues, members of the Boston Society for Psychiatry and Neurology, who join me in wishing we were sufficiently near to allow more frequent interchange of courtesies. The Philadelphia Neurological Society has occupied, for the past twenty years, the forefront of every advance, and I can wish it no greater felicity than the maintainance of its well-earned prestige.

[1] Ross, Diseases of the Nervous System, 1883, p. 114.

Correspondence.

LETTER FROM UPPER EGYPT.

CLIMATE. GROWTH OF ASSOUAN. RESURRECTION OF PHILAE. GOLF. ERADICATION OF OPHTHALMIA. A BISHARIN MOTHER. "PIGEON" ARABIC. SIR STEPHEN MACKENZIE, M.D.

ASSOUAN, UPPER EGYPT,
Jan. 10, 1904.

MR. EDITOR: The brief but acceptable apology for winter which one usually receives in this part of Egypt has not yet been offered. On the contrary, the weather thus far has been of the sort to be expected in March — the thermometer registering 90° F. on several occasions during the past three weeks. In Cairo it is cool and heavy rains have already fallen in Lower Egypt, which leads such of us as have been wise enough to come up the Nile in good season to congratulate ourselves on our foresight.

The season promises to be a most successful one, and very soon the hotel accommodations of the country will be strained to shelter the crowds which the absence of cholera and plague scares and the cold summer which prevailed throughout the world will attract to Egypt. Assouan is being constantly improved in many ways: roads are being widened and well ballasted, pretty little public gardens are springing up along the river front, and new and substantial buildings are being erected.

The gates of the Great Barrage have been recently opened, and Philæ has risen from the Nile not a bit the worse for its long submersion. Those who prophesied that the lines of its temples would be injured by adhesion of river mud are agreeably disappointed, for the little island was never more beautiful. Every day parties visit it to make sure of seeing this gem of all Egypt before the water is again held back and the Nile hides most of its beauties.

Golf has at last come to Assouan, and a very "sandy" nine-hole links has been made. A clubhouse of mud brick is being quickly built, and in a few days coming "events" will cast their shadows on the hotel bulletin boards.

A most interesting experiment is now being carried out. Sir Herman Casell donated £10,000 last spring for the purpose of eradicating, if possible, the dreadful scourge of Egyptian ophthalmia, which causes partial or complete loss of eyesight in so many cases.

It is certain that the flies, which are permitted to remain on and about the babies' eyes, are a potent cause of the disease, which is most difficult to cure unless in the early stages. Three reasons are given for this stupid neglect on the part of Egyptian mothers: laziness; the belief that Allah sends the flies and ill luck must follow their dispersion; and, lastly, that they take away the poison — the fact that they also bring it being completely ignored.

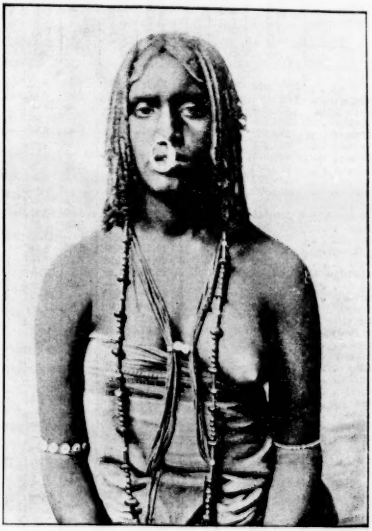
That the women are lazy and superstitious is undoubtedly true; but they are fond of their children, and I fancy the last-named reason is the true one.

Be that as it may the sanitary department has sent out well-qualified medical men with a complete outfit of camels, tents, medicines and supplies of all sorts to begin the crusade, by moving about the country and demonstrating to the natives that the disease is curable, and at the same time preaching the doctrine of cleanliness plus the vigorous use of a fly switch.

If this sanitary caravan is within fairly easy reach (it is in the Fayoum at present writing) when I go down the river, I hope to visit it and learn at first hand what progress is being made.

Here, where flies are comparatively few, one rarely sees ophthalmia, and I have never happened to observe a case in the Bisharin camp, just outside the town.

The average nomad Arab is healthier, cleaner, braver and in every way a better man than the dwellers in towns and mud villages, and when water is scarce these sons of the desert "wash" in fine sand!



A BISHARIN MOTHER.

Those of us who are beginning to qualify as "old Egyptians" gradually acquire a certain knowledge of what may be termed "pigeon" Arabic. The climate is not such as conduces to committing to memory what good linguists lightly refer to as "the few simple rules" (which a bountiful crop of exceptions serve to prove) that aid so much in acquiring the language; and we content ourselves with the ability to make known our simplest wants. The pronunciation is comparatively easy, the crux being the *kh* at the beginning of a word. This has the sound of *ch* in loch, as the Scotch pronounce it, and comes off very well with what I believe is known as a "flying start;" but unless it happens to be terminal is practically impossible for the average (foreign) tongue.

Some of the minor amenities of ordinary intercourse gradually force themselves upon us, as, for example, the addition of "O thou blessed one" to the ordinary form of salutation. This is invariably received with a pleasant smile by the person addressed and also produces a mild sense of triumph in the speaker.

The sounds of the language as spoken by adults is harsh and strident, and to listen to the conversation of two housewives from the roofs of their respective mud huts is a torture to sensitive ears.

Among the old Egyptians who frequent Assouan is Sir Stephen Mackenzie, M.D., who is subject to asthma if he remains in England during the winter months, but is quite free from it in this clear dry air. As I sit writing by an open window with the thermometer standing at 73° F. in the room, it seems hardly possible that I have made no error in my date.

F. G. M.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 23, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,451	412	19.71	22.10	2.39	2.51	.34
Chicago . . .	2,021,086	517	127	22.63	20.50	1.35	4.64	1.74
Philadelphia .	1,407,968	—	—	—	—	—	—	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	188	46	20.21	17.02	1.06	2.13	2.66
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	136	—	11.76	20.58	1.47	.73	7.35
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,890	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	74	26	18.91	22.96	4.05	5.40	—
Boston . . .	617,950	222	50	21.17	23.42	1.80	1.35	.90
Worcester . .	136,925	32	11	15.62	18.75	—	3.12	—
Fall River . .	119,349	28	14	15.78	26.31	2.63	2.63	—
Lowell . . .	104,402	24	4	20.83	12.50	4.17	—	—
Cambridge .	100,998	35	7	22.85	14.28	5.71	—	—
Lynn	73,875	26	7	7.70	—	3.85	—	—
Lawrence . .	72,348	23	6	34.78	17.39	—	8.69	4.35
Springfield .	72,020	25	7	8.00	32.00	4.00	—	—
Somerville .	70,413	12	1	16.67	16.67	—	—	—
New Bedford	68,863	24	5	16.67	25.00	—	—	—
Holyoke . . .	50,538	18	4	5.55	11.10	—	—	—
Brockton . .	46,601	8	0	—	—	—	—	—
Newton . . .	39,310	11	2	18.18	18.18	—	—	—
Haverhill . .	39,061	15	4	—	26.66	—	—	—
Malden . . .	37,295	13	4	23.10	23.10	7.70	—	—
Salem	37,188	9	2	33.33	—	—	—	—
Chelsea . . .	36,499	10	3	—	20.00	—	—	—
Fitchburg . .	36,335	11	4	9.09	18.18	—	—	—
Taunton . . .	34,577	20	3	5.00	50.00	—	—	—
Everett . . .	30,209	4	1	—	—	—	—	—
North Adams	29,201	7	1	14.30	28.60	—	—	14.30
Quincy . . .	26,798	6	2	33.33	16.67	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	12	3	25.00	8.33	—	—	—
Brookline . .	25,576	5	—	—	20.00	—	—	—
Pittsfield . .	22,870	6	—	33.33	—	—	—	—
Medford . .	21,956	4	2	25.00	—	—	—	—
Chicopee . .	21,692	11	8	18.18	18.18	—	—	—
Northampton	20,314	5	1	—	40.00	—	—	—
Beverly . . .	15,807	5	—	20.00	20.00	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	0	—	—	—	—	—
Adams . . .	14,745	3	2	100.00	—	—	33.33	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	7	2	14.30	—	—	—	—
Newburyport .	14,478	2	0	—	—	—	—	—
Woburn . . .	14,315	—	—	—	—	—	—	—
Melrose . . .	13,819	0	—	—	—	—	—	—
Westfield . .	13,809	3	—	—	33.33	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	5	1	20.00	20.00	20.00	—	—
Revere . . .	13,609	3	—	33.33	33.33	—	—	—
Framingham	12,974	3	—	33.33	33.33	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	—	—	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	3	—	—	—	—	—	—
Weymouth .	11,350	1	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,042; under five years of age, 772; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 593, acute lung diseases 790, consumption 410, scarlet fever 42, whooping cough 4, cerebrospinal meningitis 9, smallpox 2, erysipelas 14, puerperal fever 12, measles 27, typhoid fever 33, diarrheal diseases 78, diphtheria and croup 61.

From whooping cough, New York 2, Pittsburg 1, Quincy 1. From smallpox, New York 1, Pittsburg 1. From cerebrospinal meningitis, New York 7, Somerville 1, Adams 1. From erysipelas, New York 5, Chicago 2, Baltimore 1, Pittsburg 1, Providence 1, Boston 2, Worcester 1, Quincy 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending Jan. 9, the death-rate was 20.4. Deaths reported, 5,968; acute diseases of the respiratory organs (London) 248, whooping cough 121, diphtheria 60, measles 132, smallpox 5, scarlet fever 36.

The death-rate ranged from 7.9 in Barrow-in-Furnace to 41.7 in Preston; London 19.4, West Ham 16.3, Brighton 25.6, Southampton 15.3, Plymouth 15.1, Bristol 17.6, Birmingham 23.4, Leicester 17.4, Nottingham 23.1, Liverpool 26.7, Bolton 20.2, Manchester 24.6, Salford 24.1, Bradford 21.2, Leeds 22.6, Hull 17.5, Cardiff 17.7, Rhondda 21.3, Marthyr Tydfil 40.1, Kings Norton 16.4, York 19.9.

METEOROLOGICAL RECORD.

For the week ending Jan. 23, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	Rainfall in inches.
S. . 17	29.92	22	36	9	76	68	72	NW	N W	16	20	F.	C.	T
M . 18	30.50	6	14	-1	74	73	74	NW	N W	14	18	C.	C.	0
T. . 19	30.80	2	11	-6	84	53	64	N	N	10	5	C.	C.	0
W . 20	30.30	18	28	8	93	76	84	S	W	11	8	N.	O.	.06
T. . 21	30.16	30	32	27	73	100	86	NW	N E	7	20	O.	N.	.18
F. . 22	30.03	27	35	19	94	92	93	E	N E	20	11	N.	R.	.62
S. . 23	29.86	30	42	19	100	95	98	E	N W	2	5	G.	O.	.12
☞	30.22		28	82										.98

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

DANIEL FRANCIS MURPHY, M.D., M.M.S.S., died in Woburn, Jan. 31, 1904, aged fourty-four years.

GEORGE CLINTON HALE, M.D., son of the late Dr. Charles Hale, of Greenbush, N. Y., and a great-grandson of Governor George Clinton, died at Catskill, N. Y., on Jan. 30, in the seventy-second year of his age.

GEORGE H. R. BENNET, M.D., of Brooklyn, N. Y., died on Jan. 26, at the age of sixty-seven years. He was graduated from the medical department of the University of the City of New York in 1860, and during the Civil War was a surgeon in the Twenty-Third New York Regiment.

ROBERT M. WEED, M.D., of New Rochelle, Westchester County, N. Y., died on Jan. 25, at the age of forty-nine years.

PHARMACOLOGIST.

BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

The United States Civil Service Commission announces an examination on March 1, 1904, to secure eligibles from which to make certification to fill a vacancy in the position of pharmacologist (male) in the Bureau of Plant Industry, Department of Agriculture, at $1,800 per annum, and other similar vacancies as they may occur.

The person appointed to this position must be a man trained and equipped with the knowledge and experience necessary for isolating and handling poisonous and other active principles of plant origin. He must be trained in animal physiology and pharmacology, and must have had experience in studying by exact laboratory methods the effect exerted on the different animal functions by the active principles of plant origin. He should be familiar with the best forms of apparatus used in carrying on such experiments and should have abundant laboratory experience in making such investigations. He should be able to read at least French and German, in addition to English. Age limit, twenty years or over.

This examination is open to all citizens of the United States who comply with the requirements.

Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1312, which should be properly executed and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 1, 1904. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

Issued Jan. 29, 1904.

BOOKS AND PAMPHLETS RECEIVED.

Report of the Commissioner of Education for the year 1902. Vol. II. Washington. 1903.

The Social Evil in University Life: a Talk with the Students of the University of Pennsylvania. By Robert N. Wilson, M.D. Reprint.

Original Articles.

REMARKS UPON CHOLECYSTECTOMY AND CHOLECYSTOSTOMY, WITH SPECIAL REFERENCE TO THEIR COMPARATIVE SAFETY AND EFFICIENCY IN THE TREATMENT OF BILIARY AFFECTIONS.

BY MAURICE H. RICHARDSON, M.D., BOSTON,

Professor of Clinical Surgery, Harvard University.

THE questions when to drain the gall bladder and when to remove it are, in the present state of our knowledge, very difficult ones to decide. In my operations upon the biliary passages during the present year I have extirpated the gall bladder more frequently than I did formerly. The indications for complete removal have seemed more numerous and less questionable. In certain instances I have removed a gall bladder that was not more seriously diseased than many have been in previous permanently successful cholecystostomies. I am inclined to believe that in operations which do not permit easy and prolonged drainage the chief benefit of surgical intervention in gallstones is lost. I must admit that I am more and more convinced, by these cases in which there has been no free and prolonged drainage, that my earlier views were the proper ones, and that in the performance of cholecystectomy without providing for such drainage we are not only losing one of the most beneficent results of the operation, but are occasionally subjecting a patient to grave risks.

The dangers of cholecystectomy and cholecystostomy in simple cases are probably slight. An incomplete review of my private gall-bladder operations in 1902 and 1903 shows in a total of 51 operations, four deaths; two in 1902, and two in 1903. None of these deaths could have been prevented. In 1902 one patient died of pneumonia in advanced cholecystitis, for which drainage was made. The patient was *in extremis*. A second died of pulmonary embolism, during a satisfactory convalescence from cholecystostomy for acute cholecystitis. In 1903 one patient died of shock within forty-eight hours after cholecystostomy and choledochotomy. The second died of subphrenic abscess after removal of the gauze drain, though the convalescence during the first two weeks was very satisfactory and encouraging.

The arguments based upon mortality in such cases as these have little weight. The method of operation made probably little difference. The patients would have succumbed just the same after any operation of magnitude, or, indeed, after any operation.

The reason why during the past year I have resorted more frequntly to total extirpation is hard to tell. I have been influenced somewhat by the advocacy of others whose experience and opinions I respect; and I have thought perhaps that by my adherence to older ideas I was neglecting opportunities for better immediate and permanent results. A second influence has been the great anatomical attractions of extirpation; and a third, the repugnance I feel against any operation which fixes to the anterior abdominal wall by a local area of adhesions a freely movable organ. Furthermore, I have hoped by extirpation to avoid the great tendency to ventral hernia seen in drained wounds of the right upper quadrant. Another important element has been found in those changes in the gall bladder which at the time of operation made drainage difficult and unsatisfactory. Finally, I have been influenced by changes in the gall bladder itself which, though permitting satisfactory temporary drainage, seemed unlikely to be relieved permanently by that drainage.

The number of cases personally observed and treated, upon which my views are chiefly based, includes 200 operations upon the biliary passages — 140 private and 60 hospital. This list is incomplete, however, as some cases have been overlooked. The number not operated upon will comprise many more cases; and the number which I have observed in the wards of my colleagues will add several hundred more. My views are chiefly influenced, however, by my own cases, for it is these only with which I have been brought into close personal contact.

The operation of cholecystectomy is, in my experience, a very satisfactory one. The mortality has been small; convalescence has been rapid, and, with a few exceptions, permanent; and there is little tendency to hernia. Unfortunately, the data as to the permanent effect of total extirpation — either upon the general well-being of the biliary passages or upon the liability to the re-formation of gallstones — are insufficient for the formation of a positive opinion; for what are one, two, or five hundred cases of a lesion which permits combinations and complications of an almost infinite variety?

The analogy between the gall bladder and the appendix would seem in some respects a close one, and yet the resemblance is more apparent than real. The appendix is, compared with the gall bladder, simplicity itself, and it is impossible to draw deductions from the much greater experience that we have had in the one to aid in the solution of questions in the other.

In the case of the appendix there is simplicity in anatomical structure, in anatomical relations, in modes of infection, in the progress of the lesion and in the ultimate anatomical changes.

The anatomy of the biliary passages, on the other hand, is complex; the ramifications of the bile ducts are far-reaching; the anatomical relations are of the first magnitude. Moreover, the functions of the gall bladder are not understood. That it acts as a reservoir for storing bile is the most obvious idea, and yet this function cannot be of any considerable importance. I have seen many cases in which there has not been the least interference with digestion or with nutrition after the removal

of a gall bladder. In many other patients whose gall bladders have been for years apparently useless I have failed to observe any symptoms attributable to that cause. There is no analogy between the gall bladder and the appendix in this respect at least, except that both for all practical purposes may be regarded as useless appendages. I should not therefore consider the retention of the gall bladder as especially important were it deemed advisable for good reasons to remove it.

Though it is generally admitted that gallstones are the remote results of biliary infections; yet, from the great extent of the radicles of the hepatic duct, it is, in many cases at least, impossible to say where those infections first call into being the microscopic stone. Though the nidus of gallstones is usually in the gall bladder, in a very considerable number of cases the stones are said to form in the liver. Clinically I have found it impossible to tell in any case whether gallstones removed at a second operation were re-formed in the gall bladder or not. In one of my earliest cases, for example, I could feel a stone in the hepatic duct. In trying to dislodge and deliver this stone it slipped from my fingers and became lost in the depths of the great fissure, where I could not again detect it. I have removed large numbers of stones from the hepatic and common ducts, only to have 150 or more subsequently discharged from the hepatic duct through the tube into the dressings. Post-mortem examinations have for years shown the existence of gallstones in the liver. I have removed, in the course of gall-bladder operations, large numbers of stones from the hepatic duct, as well as from the gall bladder and from the cystic and the common ducts. I am convinced that in certain cases of so-called recurrence of gallstones, when I have had to operate a second time, that the stone or stones were in existence at the time of the original operation, and that they were either overlooked in the main ducts themselves, or that they lay hidden far beyond reach in the primary divisions of the duct in the liver. It must therefore be admitted that in a certain percentage of cases removal of the gall bladder itself with the cystic duct does not remove the already existing stones. It must be admitted also that, even if all the stones then existing are removed by cholecystectomy, stones may form anew somewhere in the remaining biliary passages.

I am fully convinced, however, that the gall bladder is the place where, in most cases, the gallstones form, and that their appearance elsewhere is either subesquent to their formation in the gall bladder or directly dependent upon anatomical and pathological changes induced in the hepatic radicles by gallstones which have passd out of the cystic duct. For all practical considerations this explanation seems to me perfectly reasonable and satisfactory. Even when I have removed a hundred or more directly from the hepatic duct, I have been sure that these hepatic stones were formed either in the gall bladder or in ducts dilated above an impaction. I have never seen clinically a gallstone in the hepatic or in the common duct without some evidence of its previous existence in the gall bladder itself. I do not believe that at the autopsy table a perfectly healthy gall bladder will often be found when gallstones have been demonstrated in the hepatic radicles. I would admit the possibility of gallstones in the liver, but would not consider this possibility as an argument of any appreciable weight in deciding between cholecystostomy and cholecystectomy.

I have removed in several cases a gallstone from the cystic duct, or from the hepatic or common, at a second operation. These stones have been of great age, and were undoubtedly overlooked at the time of the first operation.

One of the first facts impressed upon the operator in gall-bladder surgery is the great diversity in the pathological conditions existing at the time of operation. Although in the future it is not likely that ancient gall-bladder lesions will be as common as they have been in the last ten years, yet there will probably be a certain number of cases in which this lesion will be found well advanced, even if the patients are operated upon at the time of the earliest observed symptoms.

The scope of this communication does not include a discussion of the wide diversity in pathology. I have been impressed by these extraordinary variations from the normal at the operating table at a time when the interpretation of the pathological facts was of the greatest importance, and essential to the proper completion of the operation. It is enough to emphasize the fact that changes of great importance and of far-reaching effects, influencing not only the indications for operation but the methods of performing that operation, may be encountered in some of the apparently simple cases. The question of drainage or of extirpation may be settled at once by the condition in which the gall bladder will be found, and in which the operator will have no choice. The very first history of gallstones elicited from a patient by careful questioning may be that of the impaction in one of the ducts of a stone of great age, expelled perhaps after many years of chronic inflammation of the gall bladder, with ulcerations and contractions. Again, a gallstone may have formed and ulcerated through the gall bladder and into the intestine, and it may have caused a complete intestinal obstruction, without having given rise to any symptoms whatsoever. Nothing but the remains of the gall bladder may be found, contracted upon a dilated common duct — the whole taking place so gradually and so quietly as never to cause even a temporary discomfort. On the other hand, gall bladders may be, and often are, filled with large numbers of small gallstones; or the whole capacity of the gall bladder may be taken up by a single large stone, without any marked changes in the gall bladder itself and without any history

of pain or discomfort. Again, a single stone may cause symptoms of almost every kind as to severity and duration without either having become impacted in the cystic duct, or having caused ulceration of the mucous membrane, or having set up a gall-bladder infection. Furthermore, without any apparent cause, either from gallstones or from any other source, the gall bladder may suddenly become the seat of a fulminating infection and of an actual gangrene. And, finally, the gall bladder may become ruptured without any previous symptoms whatever. All of these lesions I have myself seen. Who can doubt that an experience of several thousand cases will show a diversity of lesions and of symptoms and of complications which is, as I have said, of almost infinite variety?

These are, however, but a few of the changes which I have observed in the course of perhaps some three or four hundred gall-bladder cases, including those operated upon and those not operated upon, as well as those discovered in the course of other abdominal operations.

Although an enormous amount of material is at hand to show the truth of the foregoing remarks, and to illustrate the tremendous diversity of pathological conditions, yet this field must be regarded — clinically, anatomically and pathologically — as a field which has been very incompletely explored. In a large number of cases the surgeon will find conditions present — before — during and after operations — for which he will search in vain for a precedent. Many questions in biliary surgery connected with the history — the physical examination, the indications for operation, the operation itself and the after treatment — are still unsettled. We do not even know what the early symptoms of gallstones are. We are seldom able to find any physical signs whatsoever, and we are sometimes unable to detect gallstones in the biliary passages, even with the hand inside the abdomen. Indeed, with the gall bladder between my fingers, I have been unable sometimes to detect gallstones before relieving distention; and yet I have found as many as a hundred stones after the relief of that distention.

The foregoing remarks may be regarded in the light of an introduction to the discussion of the chief subject of the evening — the comparative merits of cholecystectomy and cholecystostomy when a choice between these methods is possible. In many cases, as I have already said, there can be no choice. The gall bladder is already practically extirpated, and in many its condition is such that it must be extirpated. Choice is possible between the two methods only when the gall bladder is comparatively normal.

The question of function is perhaps the most important one from the standpoint of the physiologist. Whatever the truth may be as to the office of the gall bladder in nature, it has been demonstrated often enough that it is not indispensable. If not indispensable, the functions of the gall bladder have little importance in comparison with the advantages of draining the biliary passages. Should drainage be proved, as a rule, unnecessary or even dangerous, the gall bladder may be sacrificed without a thought as to its functions. On the other hand, if drainage is the best policy in gall-bladder surgery, and if the gall bladder provides the best route; if its retention causes, on the whole, less subsequent trouble than its extirpation, then the functions of the gall badder, whatever their importance, may be considered.

The practical arguments in deciding between extirpating and draining the gall bladder are three — perhaps four — in number, and are based : (1) Upon the comparative dangers of the two methods; (2) upon the comparative efficacy of preventing the recurrence of gallstones; and (3) upon the advantages of temporary drainage of the biliary passages ; finally, upon the possible necessity and increased difficulty of draining those passages at some future time.

(1) The comparative dangers of cholecystectomy and cholecystostomy. — As a rule, in gall-bladder surgery, as in all other kinds of surgery, the deeper the dissection and the nearer to vital structures the greater the immediate and remote dangers of the operation. This rule certainly applies to the surgery of the biliary passages. When the manipulations of the operation are carried on at the surface of the body, practically outside of the abdominal wound, there is no hemorrhage; the dissection involves no important structures; and infection, if it is present, is in the superficial areas of the abdominal cavity; the dangers of peritoneal contamination are easily and effectively guarded against. Clinical experience shows that cholecystostomy is the safest of all operations upon the biliary passages.

From the small number of deaths in my series of two hundred cases no deductions can be drawn. It would be unfair to compare the mortality following a number of difficult cholecystectomies with the same number of simple cholecystostomies, and *vice versa*. Taking a small number of any operations and drawing from them conclusions as to mortality rates is extremely misleading. It is absurd to base any argument, for example, upon my own results in extirpation, for all the deaths have been dependent upon causes other than the operation of extirpation by itself. It would be as absurd to claim for choledochotomies, of which I have had a considerable number with a small mortality, as great safety as that of an easy operation like cholecystostomy. I shall assume for purposes of argument that extirpation of a normal gall bladder is in itself an operation almost but not quite as safe as cholecystostomy; that the comparative mortality is, however, practically the same under similar conditions. If there is any choice on the ground of immediate danger, it is in favor of simple drainage — cholecystostomy.

There are conditions, however, in which drainage is quite as dangerous as extirpation. That is when the gall bladder is deeply contracted, hard to find, adherent to surrounding viscera and infected. In such cases the chief danger is from the deep dissection, the hemorrhage and the infection; and it makes little difference whether or not the remains of the gall bladder be removed above the point where the tube is fastened.

In cholecystectomy, even under the most favorable circumstances, a considerable area of the under surface of the liver is left bare and oozing; the cystic artery must always be cut and tied; the dissection is in close relation with the portal vein, and sometimes with the inferior cava; there is always the danger of tying the cystic duct so as partially to obstruct the hepatic and common ducts; the gall bladder may at any time be ruptured, or suddenly cut into, and the field flooded with its contents; hemorrhages from the raw surface of the liver are sometimes controlled only with the greatest difficulty. Occasionally, as I observed many years ago, after apparently the most effective ligation of the cystic duct, a burst of bile takes place from the depths of the wound, whence it must be carried to the surface wholly by the capillary drainage of a gauze wick.

Yet, with all these dangers, removal of a comparatively normal gall bladder, in experienced hands, probably does not, as I have said, add very materially to the risk. The mortality after extirpation of thin, elastic, translucent, unchanged gall bladders, loosely connected with and easily separated from the liver, with an easily isolated and tied cystic duct — is very small. I have had no deaths in such cases, whether operated upon by cholecystostomy or cholecystectomy. Barring certain complications which I will mention later, this seems a most effective method of treating gallstones in the gall bladder. The recovery is always more rapid than after drainage; there is less liability to hernia. But are the ultimate results as good? I believe that they are not.

When the comparative dangers of draining and of extirpating a changed gall bladder are considered,— when we have a gall bladder that is thickened, adherent and infected,— the dangers of extirpating such a gall bladder seem to me greater than those of draining that gall bladder. The question then comes up whether extirpation of such a gall bladder is not followed by much better permanent results than drainage. Operation upon an adherent, thickened, friable, septic gall bladder, with presumably a thickened, ulcerated, strictured duct, with or without gallstones, is a formidable operation, and one of very considerable mortality. The surgeon finds in such cases an increased amount of hemorrhage and greater difficulty in checking it, with much greater difficulty in preventing extensive peritoneal infection. When the gall bladder is contracted and thickened, when its fundus is far removed from the abdominal wound by gradual contraction, then the difficulties of drainage may be much greater than the difficulties of extirpation. In draining such a gall bladder it is necessary, first, to isolate it from surrounding structures — a procedure often of great difficulty, and sometimes resulting in rupture of the gall bladder and extensive infection of the surrounding parts. It is always difficult to fix a tube in effectively, so that bile will not be poured out into the depths of the wound. Once having isolated such a gall bladder down to the cystic duct, ligation of that duct and removal is a simpler and safer procedure than drainage of it.

However desirable it may be to extirpate a contracted, thickened and friable gall bladder, in many cases it is essential under these circumstances to drain the biliary passages. If these passages are not drained through the contracted gall bladder and the cystic duct, then the surgeon must seek for the common or the hepatic duct, and make his drainage through them. The simple extirpation of such a gall bladder is probably a safer procedure than attempted drainage through it. Under the pathological conditions which exist, however, it is generally essential to provide temporary drainage, either by deep cholecystostomy or by drainage through the common or hepatic duct.

The comparative dangers, then, of cholecystectomy and cholecystostomy are chiefly in connection with the normal and the comparatively normal gall bladder.

(2) The prevention of gallstones.— The weight of this argument depends upon the etiology of gallstones. If they are always formed in the gall bladder and nowhere else, this argument is of the greatest possible weight in favor of cholecystectomy. I have already considered briefly this question in the introductory remarks. I am convinced that as a rule gallstones are formed in the gall bladder, and there alone. I have never seen a case which led me to suspect the re-formation of gallstones either in the gall bladder or in the liver. In not a few instances I have been obliged to operate a second time, and I have removed at the second operation one or more gallstones. These stones were not new stones, however. I have found gallstones in the hepatic duct, high up in the liver. In one instance 150 were discharged from the hepatic duct during convalescence. These stones were, I fully believe, formed in the dilated hepatic duct.

The argument of preventing gallstones by removing at once the *fons et origo mali* is, in my mind, a very strong one, and it weighs almost wholly in favor of cholecystectomy.

On the other hand, if gallstones are formed in any appreciable number of cases in the liver, cholecystectomy without drainage of the biliary passages is undesirable. Drainage after cholecystectomy by means of a tube in the hepatic duct will give drainage for the time being. Should a second operation become necessary, drainage will be extremely difficult.

I am fully convinced by my own experience, however, that gallstones are extremely seldom re-formed, even in the gall bladder. That they may re-form in the liver is a possibility so remote that it need hardly to be considered in discussing the comparative merits of cholecystostomy and cholecystectomy. The argument of liability to re-formation, therefore, favors cholecystectomy rather than cholecystostomy, but the weight of this argument is light.

(3) Drainage of the biliary passages is the one great benefit to be gained by the operation upon the biliary passages, whatever may be the lesion for which the operation is undertaken. I am very strongly of the opinion that the free escape of bile through the wound for two or three weeks does more good than anything else connected with the operation. Hence any method which does not provde this free temporary escape fails in the most important element for permanent success.

By cholecystostomy drainage may be provided in the quickest and safest way. When the gall bladder is normal or comparatively normal — though perhaps at this time drainage is least important — a tube fastened in the fundus of the gall bladder by means of a purse-string provides a safe and efficient means for the escape of bile, and for the thorough washing out of all elements of sepsis, of every possible nidus of renewed infection or of repeated gallstone formation. Furthermore, in some way not easy always to understand, it provides for those symptoms and lesions originating in the pancreas. It gives the patient the very best chance for immediate and for remote recovery.

It is true that drainage of the biliary passages may be affected after extirpation of the gall bladder, by means of the cystic, common or hepatic ducts. This operation, however, is not so easy or so safe as it is by some regarded. To hunt for the hepatic duct after isolation of the gall bladder and cystic duct is no small operation in itself. I find it often difficult to demonstrate the hepatic duct in my regional surgery course. The cystic duct is sometimes so small that it will not admit any but the smallest probe. Moreover, the valves of the duct prevent the introduction of the probe. The hepatic duct, unless it is dilated by long-continued obstruction below it, is too small for the introduction of any but the smallest tubes. I need hardly add that the search for the hepatic duct in the depths of the wound requires a very long incision. The technical difficulties of hepatic drainage in the comparatively normal case are, I do not hesitate to say, of great magnitude, besides which such an operation as, say, the isolation of the cervical sympathetic from the jugular and carotid is a trivial task. I cannot imagine how hepatic drainage as a routine procedure can be seriously encouraged, either in connection with cholecystostomy or following cholecystectomy. Furthermore it will take a good deal to convince me of either the necessity or the wisdom of this course when there is at hand so safe and so efficacious a method as cholecystostomy.

Under certain conditions, however, drainage through the hepatic duct must be used whether cholecystostomy or cholecystectomy be performed. When drainage through the gall bladder has been ineffectual or unduly difficult, I have introduced a tube into the hepatic duct through the contracted gall bladder. In other cases, after extirpation of a contracted gall bladder, I have found no difficulty in so doing by incising the dilated duct. In a recent case I drained each primary division of the hepatic duct — one tube going into the right half of the liver, the other into the left. The gall bladder was a rough mass on the dilated common and hepatic ducts, which together resembled closely a thickened and somewhat contracted gall bladder. A free incision into this apparent gall bladder revealed two large openings, each admitting almost the finger tip. A tube in each provided the best kind of drainage. The comparative amount of bile from each half of the liver was then easily determined. The patient made a good recovery. In gallstone impactions of the common duct hepatic drainage is, of course, essential.

Cholecystectomy in the case of the normal or comparatively normal gall bladder does away with drainage, or should do so. If drainage is essential in gall-bladder surgery, cholecystectomy should never be performed in the comparatively normal gall bladder. When the gall bladder is abnormal — infected, contracted —it should be removed for reasons connected with its own pathological condition. Yet I have been surprised to find how many badly infected gall bladders have become perfectly healed after cholecystostomy. On the other hand, I have been disappointed to find fatal gangrene after draining an acutely infected gall bladder.

Drainage of the biliary passages in acute or chronic cholecystitis is indispensable. When, therefore, it is proposed to extirpate such a gall bladder, it is proposed to do away with drainage, except by methods difficult and dangerous already described.

My recent experience tends to confirm the objections to cholecystectomy expressed above. In three cases — all operated upon during the past three or four months — there have been very serious, not to say alarming, symptoms.

Mrs. A. L. M., aged fifty-three, a patient of Dr. Cochrane of Arlington, Vt., had suffered from biliary colic for twenty years. At the operation on June 26, 1903, I found a gall bladder everywhere adherent, contracted so close to the duodenum that separation seemed impossible. The fundus of this contracted gall bladder was at last delivered and tapped. The large, altered gall bladder was enucleated as well as possible. One hundred and seventy gallstones were removed, some of which were in the depths of the sacculated cystic duct. I sewed into the remains of the gall bladder and into the dilated cystic duct the largest drainage tube that I could get in. The whole appearance and feel of the region was that of malignancy, but there was no malignancy.

This patient was discharged from the hospital on Aug. 12. At that time there was a sinus giving exit to perhaps a pint of serum and about half an ounce of mucus in twenty-four hours.

The last of August Dr. Cochrane removed from the sinus two more stones: one as large as a large pea and the other about the size and shape of a kernel of buckwheat. For about a month after this patient's return home the sinus discharged a considerable amount of serum and mucus every day. At the end of this time there was a sudden discharge of bile. For four or five days there was a discharge of at least two quarts in twenty-four hours. The flow ceased almost as abruptly as it appeared. It reduced itself by half at each of the three consecutive dressings (twelve hours apart), and then the sinus closed entirely, and stayed closed.

The question of cholecystectomy and cholecystostomy in a case like this is one of very little importance. Practically the case may be regarded either as one of a very large opening into a very small gall bladder, or as one of a very large opening into the remains of a very small gall bladder. The element of extirpation has, I think, no bearing in a case of this kind. There was nothing else to do except what I did do. It has a bearing, however, on the subsequent history of the case. I have no doubt that the complications which followed the operation in this case were owing to the fact that the lesion, the manipulations of the operation and the drainage, all concerned the common, the hepatic and the cystic ducts — just as they do in extirpation of the gall bladder. The explanation of the symptoms would be either that the stone was overlooked, or that there was a temporary engorgement and swelling of the mucous membrane of the duct. This is one of the cases which is, as far as my experience goes, without precedent.

II. The second case was that of a man of fifty, a patient of Dr. Sullivan of Dover, N. H. The diagnosis was gallstones and chronic cholecystitis. On July 2, 1903, at St. Margaret's, I removed the gall bladder through an incision four inches in length at the outer border of the rectus. The gall bladder was adherent everywhere, and being very friable was removed with difficulty. The cystic duct was tied with silk, and a small gauze drain was left in the depths of the wound.

This patient was discharged from the hospital on July 25, well.

On Aug. 8 Dr. Sullivan wrote that he had been called to see Mr. L., who was suffering extremely from pain in the right side. He was vomiting yellow mucus, and he was jaundiced. The temperature was 101° and the pulse 100. After this attack there was tenderness in the region of the gall bladder, with recurring fever, persistent nausea and vomiting, with insomnia. There was gradual improvement in this case. The pain and soreness diminished; the patient had no further attacks of jaundice, and gained in health and strength, so that by the end of October he was able to resume his position as an engraver.

III. The third case was that of a patient of Dr. I. J. Clarke and Dr. C. E. Durant of Haverhill. The diagnosis made by Dr. Clarke and Dr. Durant was gallstones. I did not agree with this diagnosis, but advised exploration. The attending physicians were correct in their diagnosis. The gall bladder was distended with stones and with pus. It was everywhere adherent, its walls were rotten and friable, and it contained 90 gallstones. One very large friable stone was impacted in the cystic duct. In spite of every care in separating the adhesions of the gall bladder, it tore all to pieces. The fragments were all carefully removed, and the area was cleansed with salt solution and weak corrosive sublimate. An uncovered gauze wick was placed in the depths of the wound.

Two weeks after the operation the patient began to have severe pain, and she has been in pain ever since. She became jaundiced, and that jaundice has also persisted. At last accounts she was suffering severely, both from the pain and from the jaundice. On Dec. 24 I made a careful examination of this patient. There were no physical signs. On the chances, the symptoms are caused by the impaction of a stone which was overlooked at the time of the operation.

I see no escape from the conclusion that cholecystectomy without drainage is an incomplete and dangerous operation; and that cholecystectomy with drainage of the hepatic duct is an unnecessarily dangerous operation when cholecystostomy is so very easy and so safe.

The drainage of the hepatic duct, or the common, by means of a rubber tube has dangers, theoretically at least, which ought not to be disregarded. I refer to pressure ulceration upon the lining of the duct with subsequent cicatricial stenosis. The duct is elastic, contractile, with thin and presumably easily injured mucous lining. The area of mucous lining to spare is extremely limited. It is easily conceivable that two weeks' drainage may result in a serious permanent constriction of the duct. I have observed in dissections into the common duct, when that duct is dilated and thickened, that there may be a very considerable loss of substance as the result of that dissection. May not some of the cases of jaundice after operations upon the ducts result in this way from this cause?

Again, I cannot but regard free dissections and incisions in and about these delicate structures as attended by a hazard unjustifiable from changes — inflammatory, adhesive, or cicatricial — which can neither be prevented nor understood. In a word, there is a possibility of permanent damage even in the hands of the most experienced and skillful dissectors.

There seems to me no escape from the conclusion that biliary drainage through anything but the gall bladder is attended by grave risks of remote trouble — not to mention the greater hazard of the operation itself. Once convinced of the advantages of biliary drainage, one cannot escape the conviction that it is the height of folly to sacrifice in the very beginning of gallstone disease the means by which that drainage is easy and effectual. From this point of view cholecystectomy seems an operation of last rather than of first resort — an operation for old, contracted, infected, useless gall bladders,

through the remains of which, however, temporary drainage may be easily and safely established, as in my earliest operations published in THE BOSTON MEDICAL AND SURGICAL JOURNAL of April 28, 1892.

(4) The great difficulty of secondary operations upon the biliary passages, especially drainage after cholecystectomy, has been frequently impressed upon me when, after choledochotomy, or hepatic drainage with or without cholecystectomy, symptoms have seemed to demand renewed surgical measures. Considering the small number of operations which I have myself performed, the cases in which I have considered this question are few, and the cases in which I have actually operated still fewer. Natural efforts at cure have been almost invariably successful. All the cases that I have actually reopened have been those of permanent biliary fistula caused by a stone impacted either in the cystic or in the common duct. In one case a third operation was performed, the first being cholecystostomy, in 1894, for acute cholecystitis (colon bacillus); the second, in 1900, for stone in the cystic duct; and the third, in 1901, for stone in the common duct. The number of extirpations has been too small yet for any important or valuable deductions; but three out of the last seventeen have already raised this question. In two patients operated upon by competent surgeons I have been consulted for permanent fistula after extirpation of the gall bladder.

After all, the most important objection to extirpation of the gall bladder, when the cystic duct is ligated, is the loss of those great benefits which follow prolonged drainage of the biliary passages. It is true that drainage may be used in connection with cholecystectomy by putting a tube in the hepatic duct, but in many cases it would add enormously to the difficulty and danger of the operation. Moreover, it is a serious objection to extirpating the gall bladder that drainage in the future will be difficult.

The complications that have arisen after extirpations of the gall bladder in the last year, as in the cases previously mentioned, have been owing to interferences with drainage. I have not deemed it advisable in these cases to seek the hepatic or the common duct to establish drainage, hoping that the obstruction to the bile was owing to swelling of the mucous membrane, to a temporary infection, or to some condition which would of itself subside. In the first two cases the symptoms have, in fact, subsided, and the patients are now perfectly well.

Unless it shall appear that total obliteration of the gall bladder diminishes rather than increases these unpleasant post-operative complications, cholecystectomy must remain an operation of necessity rather than of choice. The greater beauty of the operation, the rapid convalescence, the firm scar, should count but little in comparison with the permanent safety and complete recovery of the patient, even at the expense of a long scar and a ventral hernia.

CHOLECYSTOSTOMY AND CHOLECYSTECTOMY. A STUDY OF A CERTAIN SERIES OF OPERATIONS.[1]

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IN the series of sixteen cases here recorded cholecystostomy was done seven times. The gall bladder in each case was attached to the abdominal parietes by suture to the peritoneum. Permanent drainage of the biliary passages was established and drainage of the quadrilateral space (Robson) beneath the gall bladder was provided for by a wick of gauze.

These cases recovered from the operation with one exception. The case which died was No. 4, a woman sixty-six years old, who developed a pneumonia before the gall-bladder fistula had closed and died some few days after the operation.

The general symptoms of these cases of cholecystostomy are here arranged in detail:

CASE I. Attacks of gall-bladder pain. No real colic; jaundice absent.

CASE II. Acute cholecystitis. Gallstones in the cystic duct; jaundice absent.

CASE III. Gallstones; colic; stones in the cystic duct; jaundice absent.

CASE IV. Gallstone attacks. Stones in the gall bladder; jaundice absent.

CASE V. Gallstone attacks. Stones in the gall bladder and the common duct; jaundice present.

CASE VI. Gallstone attacks. Gallstone in the bladder; tarry detritus in the cystic duct; jaundice absent.

CASE VII. Gallstone attacks. Stone in the common duct removed through the gall bladder; jaundice absent.

One case had pain referred to the gall bladder region, without genuine colicky attacks. One case was an acute cholecystitis, an acute infection in the presence of gallstones. Five cases had had genuine attacks of gallstone colic.

The contents of the biliary passages and gall bladder as found at the cholecystostomy are here stated in detail:

CASE I. Clear fluid in the abdomen, small in quantity; glairy, ropy mucus and a granular, pasty sediment in the gall bladder. No stones.

CASE II. A small amount of clear fluid in the abdomen; thick, cloudy mucus and inspissated biliary detritus in the gall bladder. Stones in the cystic duct. The culture from the contents of the gall bladder was sterile.

CASE III. Glairy mucus and a puriform-looking material, with a few stones in the gall bladder. The culture from the gall bladder showed bacilli coli communis.

CASE IV. Many stones in the gall bladder. The culture from the gall bladder showed bacilli coli communis.

[1] Read before the Franklin County Medical Society, Greenfield, Mass., Jan. 12, 1904.

CASE V. A stone in the gall bladder and one in the common duct.

CASE VI. One stone and a thick, tarry biliary detritus in the gall bladder. Culture from the gall bladder, bacilli coli communis.

CASE VII. A stone in the common duct. No stones in the gall bladder.

The stones were in the cystic duct in two cases, in the common duct in one case, in the gall bladder and common duct in one case, in the gall bladder alone in two cases. In one instance there was no stone but a pasty biliary sediment in the gall bladder and in the cystic duct.

Of these seven cholecystostomies one died of pneumonia. Five of the remaining cases have been carefully followed since operation. Only one case is absolutely well and without pain or discomfort referable to the gall-bladder region. In each of the other four cases there is more or less discomfort. The facts with regard to each of these are given in the detailed account.

Cholecystectomy was done in nine of these sixteen cases. The cystic duct was tied off and drainage provided from the stump of the cystic duct to the surface by means of a wick of gauze, which was removed after four or six days. All of these cases recovered from the operation.

The general diagnosis of these cases of cholecystectomy is here arranged in detail:

CASE VIII. Gallstone attacks without jaundice.

CASE IX. Gallstone attacks with temporary jaundice.

CASE X. Gallstone attacks with temporary jaundice.

CASE XI. Gallstone attacks; persistent jaundice.

CASE XII. Acute cholecystitis without jaundice.

CASE XIII. Gallstone attacks without jaundice.

CASE XIV. Biliary fistula.

CASE XV. Acute cholecystitis following cholecystostomy.

CASE XVI. Biliary fistula.

Five of these cases had rather characteristic gallstone colics. In one of these no gallstones were found, but a pasty biliary sediment filled the lower portion of the gall bladder and the cystic duct. Two were cases of acute cholecystitis. Two were cases of biliary fistula. One of these fistulæ was spontaneous; the other followed a cholecystostomy. The case of spontaneous biliary fistula had had two explorations of the gall bladder done previous to the cholecystectomy.

The contents of the biliary passages and gall bladder as found at operation are here stated in detail:

The contents of Case VIII: Cloudy fluid; gallstones; inspissated bile from the gall bladder.

CASE IX. Mucus; pasty, biliary sediment from gall bladder.

CASE X. Gallstones and no fluid.

CASE XI. Gallstones and no fluid.

CASE XII. Clear mucus, cloudy fluid, biliary slime.

CASE XIII. Slimy, granular biliary detritus and a gallstone in the cystic duct.

CASE XIV. Clear bile; no stones.

CASE XV. Clear mucus; no stones. The culture from the gall bladder: staphylococcus pyogenes aureus.

CASE XVI. Clear bile; no stones.

In only one instance was a culture taken and that was in Case XV. The culture showed the staphylococcus pyogenes aureus. This was a case of acute cholecystitis previously operated upon by cholecystostomy. The cholecystostomy wound had been closed some time. This patient convalesced without incident. In none of these cases were stones left unremoved from the common or hepatic ducts.

The end results of these nine cholecystectomies are particularly interesting. All the cases were traced and a report was obtained in each instance. The longest time which had elapsed since the operation was three years; the shortest time, one month. In each instance there has been no recurrence of gallstone colic and no discomfort whatsoever referable to the gall-bladder region. Each case considers herself well.

Of these sixteen cases, eleven showed no jaundice, or about 68%. Oehsner found in his cases that 50% had not had jaundice. One of the cholecystostomies had had jaundice, due to a stone in the common duct. Four of the cholecystectomies had had jaundice, three of which had temporary or fleeting jaundice, and one persistent jaundice.

Winslow has looked up the records of the cholecystectomies done at the Massachusetts General Hospital over a period of ten years. He will report the details of these cases at a subsequent date. A preliminary report made recently is instructive.

He finds that there have been forty-six cholecystectomies. Twenty-four of these cases have been traced and reports of their present condition secured. The results in twenty-two of the twenty-four cases have been perfectly satisfactory and might be termed ideal results. Two of the cases died subsequently,— one ten months after operation, the other two and a half years after the operation,— each with persistent symptoms, showing that they were not suitable cases for the operation of cholecystectomy.

Winslow has looked up the records, also, of the cholecystostomy cases done at the Massachusetts General Hospital during the past ten years. He finds that there have been 183 operations. Twenty-nine of these died within a week of the operation at the hospital, or 15%. Nine of these 29 deaths were malignant cases. Twenty-nine of the 183 cases, or about 18%, came to secondary operation, most of them because of biliary fistulæ following the cholecystostomy. Thirty-four cases of cholecystostomy, 13 of which were for malignant disease, have

been traced one year and more after the first operation and have been found to have had recurrent attacks or fistulæ persistent. Forty-six cases out of the 161 non-malignant cases gave good results, which might be called ideal results. That is about 28%. These were traced from one year to five years after operation.

It would seem, as some have thought, that the gall bladder and the biliary passages almost equal the appendix as sources of chronic disease and disability in adult life.

The general practitioner should be profoundly impressed by the pathological findings of the surgeon in operations upon the biliary passages and the gall bladder. This living pathology demonstrates that for months, and possibly for years, previous to operation, lesions have been in progress which have been unrecognized. It is possible that in a few of these instances diagnostic symptoms have been absent or concealed. It is far more probable that the attending physician has not recognized the signs of beginning trouble with these parts. It is a fact worthy of consideration that the patients whose cases are here recorded, as well as those mentioned by others in literature, complained of and suffered from what has been called gastritis, dyspepsia, chronic gastritis, indigestion, constipation, bilious headache, sick headache, sour stomach, biliousness, etc. Along with the ordinary symptoms associated with these troubles, enumerated above, occurred chills, loss of flesh, fleeting jaundice, sallowness, nausea, loss of strength, nervous prostration, anorexia, vomiting, pains not particularly localized, — perhaps extending from the general abdomen into the back, — general abdominal discomfort. During these months and years the physician has treated these sufferers expectantly, medically, palliatively, with pills and powders and liquid remedies, with indifferent success, as is now being made apparent by the brilliant success of surgical intervention in certain of these cases of lesions of the biliary passages.

The outspoken classical signs of cholelithiasis — namely, colic, jaundice and tumor in the gall-bladder region — may be absent. It is to-day not only possible but necessary for the physician to make a diagnosis of cholelithiasis and other lesions of the biliary passages, even if all these important classical signs are absent or in the background. It is true that many gall bladders are found at autopsy to contain gallstones, in cases not operated upon. It may be true, as is asserted, that most of these individuals complained during their lifetime of none of the classical symptoms of gallstones. Kehr's statement that only about 5% of those with gallstones in their gall bladders have symptoms seems to me to be rather misleading. Wherever there are gallstones there, there must at sometime have been an infection of a certain virulence. Gallstones represent the result of this infection. It is highly probable that many of the dyspeptic and gastric symptoms hitherto unsatisfactorily treated are symptomatic of beginning disturbances in the gall bladder and the biliary passages.

Adhesions about the gall bladder to the duodenum, to the small intestine, to the stomach, to the transverse colon, to the pancreas, and adhesions of the biliary ducts to the parts about, are known to cause great disability, with signs of gastric trouble. Upon the removal of these adhesions and their cause, when possible, the distressing symptoms vanish. This is the tale told now repeatedly of pathological conditions by gall-bladder patients.

The surgeon finds at operation three general groups of cases, definite pathological groups: the inflammatory disturbances, the cholecystitidies; the gallstone cases, cholelithiasis; and the cases of carcinoma (Quincke). Brewer has admirably arranged the diseases occurring under the above classification as follows: The inflammatory diseases, —

(1) Cholecystitis — subacute.
(2) Cholecystitis — acute (see Case II).
(3) Cholecystitis — chronic (empyema).
(4) Cholecystitis in contracted gall bladder (see Case X).
(5) Cholangitis.

All these diseases are associated more or less closely with signs of fever, local tenderness and pain. The latter disease, cholangitis, is usually, according to writers, associated with stones in the hepatic or common duct, or both, and may be characterized by sepsis of a marked type. Just what the term "cholangitis" means is not altogether apparent. It is used with one meaning by the clinician, be he physician or surgeon, and in an entirely different sense by the text-books of pathology. That the surgeon should use the term to express a clinical picture which, in the event of the death of the patient, does not present a definite pathological condition is not only unfortunate but inaccurate.

In cases of cholelithiasis the surgeon finds various combinations of conditions, arranged by Brewer in somewhat this fashion:

(1) Stones in the healthy gall bladder, ducts free.
(2) Stones in the healthy gall bladder, cystic duct temporarily obstructed by inflammatory swelling or slime (see Case VI).
(3) Stone or granular detritus impacted in the cystic duct (see Case III).
(4) Stone in the hepatic duct.
(5) Stone in the common duct, acute obstruction.
(6) Stone in the common duct, movable chronic obstruction (see Case V).
(7) Stone in the common duct, impacted, chronic.

The symptoms of importance in this group of cases will be those of pain, fever, vomiting and jaundice.

The carcinoma cases according to Brewer may be classified as follows: Tumor of —

(1) The gall bladder.
(2) The cystic duct.
(3) The hepatic or common duct.

(4) The neighboring viscera pressing upon the common bile duct.

The symptoms associated with this group of malignant diseases usually are signs of jaundice, tumor, ascites and cachexia.

It is important that one should have a definite conception of the pathological lesions which may exist in any individual case of disease of the gall bladder and biliary passages. Diagnosis will then be far more likely to be correct and treatment intelligent. It is necessary that a careful analysis of each symptom should be made in order to properly interpret its relative and absolute importance.

The surgeon having, during the past few years, made clear the living pathology of gallstone and biliary passage diseases, and having to these former medical cases brought some measure of relief, the question very naturally arises, What does the surgeon suggest for the treatment of these cases, especially of chronic gall-bladder and biliary passage trouble? There are two generally accepted procedures which the surgeon has found to be of value, namely, cholecystostomy and cholecystectomy. By cholecystostomy the gall bladder may be drained of its abnormal or normal contents, and if the cystic duct is patent, drainage at the same time may be established of the deep biliary ducts, and if the pancreatic duct opens advantageously it likewise may secure drainage through the outlet in the incised gall bladder.

The advantages of a cholecystostomy are that ordinarily it is a simple procedure, may be readily accomplished, and that the mortality is not great and the deep ducts are drained if they are patent. Obviously, in cases of cholangitis, so called, or chronic pancreatitis this procedure is of importance. I think there is, however, a mistaken impression on the part of most surgeons and medical men as to the end results of cholecystostomy. In general, cholecystostomy is supposed to afford satisfactory results. The group of cases here reported in detail, although small, confirms the returns which Winslow makes from a larger group of cases operated upon at the Massachusetts General Hospital, and the finding is that in cases of cholecystostomy persistent biliary fistulæ exist in a number of cases; that the deeper ducts are often not easily explored through the opened gall bladder and adherent parts, consequently stones are left in the deep ducts to be heard from later; that a dragging pain is present in many cases, due to the adhesions between the gall bladder and the abdominal wall, necessitated by the old technique of the cholecystostomy.

With regard to the procedure of cholecystectomy, there are certain cases in which the presence of dense adhesions about the gall bladder, cystic and common duct preclude the possibility, without subjecting the patient to a somewhat prolonged operation, of removal of the gall bladder. Obviously, in such cases cholecystectomy would be unwise. These cases, however, should be fewer and fewer as the surgeon becomes familiar with the anatomy of this region and with the technique necessary to overcome what seem at first insurmountable difficulties.

It is important before cholecystectomy is undertaken that the surgeon be sure that the deep ducts are patent and that there are no stones in the common and hepatic ducts. Should a cholecystectomy be done when stones exist in the deeper ducts these stones will certainly cause trouble, and the termination of such a case may be most unhappy. It seems to me that the exploration of the deeper ducts is rendered comparatively easy by the splitting of the gall bladder upon its under surface and of the cystic duct down to its termination. Coupled with this procedure the deep exploration is facilitated by the arching of the back as suggested by Robson, by means of a hard cushion placed under the lumbar spines, by upward lifting of the liver and traction downward upon the duodenum.

Cholecystectomy is certainly a wise procedure in cases of cholecystitis and its resulting acute conditions of gangrene and empyema of the gall bladder. These conditions are often entirely limited to the region of the gall bladder, the deeper ducts not being involved. In the absence of the involvement of the deep ducts the gall bladder should be treated as an isolated sac and removed.

Wherever gallstones exist in the gall bladder there may be a latent infection, ready to break out at any time; a re-infection may occur from the usual source, the duodenum: so that these two facts are to be given consideration in deciding whether or not the gall bladder should be removed.

It is a fact that carcinoma of the gall bladder is found in about 14% of the operated cases of gall-bladder trouble. In 15% of the secondary carcinomas of the gall bladder there are no gallstones found in the gall bladder itself. On the other hand, in 80% of cases of primary carcinoma of the gall bladder gallstones are present. It is a fair conclusion, therefore, to suppose that the presence of gallstones is an important etiological factor in the production of carcinoma, so that the leaving of the gall bladder as in a cholecystostomy affords the opportunity for the development of carcinoma.

There have been few instances of the formation of gallstones after a cholecystostomy; Homans reported one case, Kehr has reported two cases. It is more than likely that in many of the cases in which the formation of gallstones is said to have occurred after a cholecystostomy, the gallstones found at the second operation were already present in the gall bladder but unremoved at the time of the primary operation, so that the leaving of the gall bladder *in situ* does not involve a very strong probability of the formation of more gallstones.

The doing of a cholecystectomy does not preclude the possibility of drainage of the deeper parts, either by the procedure of Mayo, in dissecting out the mucous membrane of the gall bladder and leaving its peritoneal and fibrous

coat to serve as a trough from the deeper ducts to the surface, or the procedure of Kehr, of drainage of the deep ducts directly through a rubber tube.

The mortality of cholecystectomy is low. Kehr, in 100 cases, shows a mortality of 3%. In the small series here presented there was no mortality. The mortality following the hospital cases quoted by Winslow must be studied carefully before making it count against cholecystectomy. Examination of the group of deaths in Winslow's cases does not make the mortality tell against cholecystectomy.

The operation is simple and ordinarily not difficult; the after results are most brilliant — there are fewer adhesions, consequently there is less complaint of pain in the side; there are no persistent fistulæ. In other words, in ideal cases — that is, in cases which conform to the requirements of the conditions above — cholecystectomy may be regarded as a curative procedure, whereas cholecystostomy cannot be so regarded — it is a curative procedure in some cases but not in all. The position that the gall bladder should receive exactly the same treatment as the appendix is hardly tenable. There are, however, several points of analogy in the two organs.

I would then formulate my feeling with regard to the two procedures mentioned above in somewhat this fashion: Cholecystostomy should be done in those cases of gall-bladder and biliary duct surgery in which quick drainage is needed for the deeper ducts and in which the surgeon is not absolutely sure that the deeper ducts are entirely free. Cholecystectomy should be done in cases of acute cholecystitis, in cases of cholecystitis resulting in gangrene and empyema of the gall bladder, in small contracted (infected) gall badders which are functionally useless and which will not be of service in facilitating drainage, and in all cases in which the surgeon is morally sure that the deeper ducts are free from obstruction.

During an acute attack of gallstone colic it is wise to postpone operative interference. It seems to me that any patient having definite signs of gallstones or an inflammatory process about the gall bladder should be operated upon, and, in general, the earlier operative interference is instituted, other things being equal, the easier will be the operation from a purely technical point of view and the less will be the risk to the patient of the complications and sequelæ of gallstones.

The technique of cholecystostomy is facilitated by not suturing, in certain cases, the gall bladder to the parietal peritoneum, but by so securely fastening the drainage tube within the gall bladder that no leakage of bile takes place about it. The few adhesions arising from the gauze left beneath the gall bladder and tube serve to wall off the general abdominal cavity and cause little if any disturbance subsequently.

I. A. D., woman, forty-six years old, married. Patient of Dr. John Torrey of Andover, Mass. *Cholecystitis. Acute attack just over. No jaundice. Cholecystostomy, drainage of the gall bladder. Recurrence of symptoms after two years. Freedom from symptoms referable to the gall bladder now for another year.*

General health excellent. Six years ago was the first attack attracting attention to the region of the gall bladder. This attack was characterized by pain of moderate severity, referred to the left hypochondrium and then to the right hypochondrium, where it remained. The pain was relieved by hot water applications. It was attended by nausea. Each succeeding year up to the present time she has had a similar attack. The attack one year ago was more severe than any preceding; the pain not only was felt in the right hypochondrium but extended through to the right shoulder blade. During this past year these attacks have increased in frequency and severity, occurring every three months. These later attacks have been attended by severe vomiting. Both morphia and ether have been used to control the pain. After each attack soreness has been present under the right costal arch over the region of the gall bladder. The patient was seen just after one of these attacks. There was no jaundice.

Examination. A moderately stout, well-looking woman. She complained of pain beneath the right shoulder blade and gave evidences of tenderness over the gall bladder. Muscular spasm was present over the region of tenderness.

Operation. Peritoneum opened through the right linear semilunaris. A small amount of clear fluid in the abdomen. The gall bladder presented slightly enlarged, tense, its walls thickened but not friable. It contained a glairy, thick, ropy mucus. A granular sediment removed from the depths of the gall bladder and from the cystic duct, which was obstructed by this material. No stones were felt in any of the ducts. The gall bladder was fastened to the peritoneum, a rubber drainage tube was introduced into the gall bladder, and permanent drainage established. After some hours bile appeared in the drainage tube. The tube was removed after about ten days. The fistulus opening gradually closed and the patient made an uneventful recovery.

Subsequent history. For two years after operation the patient was perfectly well. Then she had an attack of pain and vomiting somewhat similar to the original attacks. The pain radiated to the right shoulder blade. Stools were normal. There was no fever. Pain was controlled by morphia. Now for one year she has been well, having a little mild distress at times in the right side. Her general health has been better than before operation. A thorough exploration of the biliary passages would be wise in this instance, and in the absence of calculi in the common and hepatic duct cholecystectomy would be indicated.

II. J. T., a man sixty-four years old, married. A patient of Dr. Coggswell, Cambridge, Mass. *Cholecystitis. Acute attack. No jaundice. Cholecystostomy. Persistent gall-bladder fistula. Second cholecystostomy and removal of stone in gall bladder and closure of fistula.*

Excepting for chills and fever and protracted diarrhea during the Civil War the patient has been well all his life. A little over forty-eight hours ago he was seized with a sudden, sharp, cutting pain across the upper abdomen. This pain was attended by vomiting. After the pain had first subsided he felt as if there were a tight constriction or band around his waist over the costal arch. He took castor oil, and a little later his bowels moved. The following day the

bowels moved again. He had severe pain throughout the greater part of the day and vomited once. Upon the third day there was a little less abdominal pain, but in the right hypochondrium, where the pain had been most intense, there was marked tenderness corresponding to the region of the gall bladder. Jaundice was absent.

Examination. The abdomen was slightly but uniformly distended and tympanitic all over and in both the flanks. To the right of the umbilicus and extending upward to the costal border a mass was felt which was tender. The liver was not enlarged. Rectal examination showed nothing of importance.

Operation. Under ether the mass felt in the abdomen was found to be continuous with the liver and moved upward slightly with inspiration. The peritoneum was opened through an incision to the outer border of the rectus. Considerable free clear fluid was found in the abdomen, and the culture from this fluid proved it to be sterile. There was found a gall bladder much enlarged, extending nearly to the umbilicus. It was covered with fresh fibrin and was slightly adherent to the surrounding parts, the ascending colon and the lateral abdominal wall. The gall bladder was attached to the peritoneum at the upper end of the incision, walling off gauze placed beneath it, a suture introduced into the fundus of the gall bladder for traction, and the gall bladder aspirated. Three ounces of thick, cloudy mucus was evacuated. The gall bladder was incised and inspissated bile was found in the depths of the gall bladder and cystic duct. Cultures made from the contents of the gall bladder were found sterile. The hand introduced into the abdomen found stones in the cystic duct. These were pushed upward into the gall bladder and removed; seven or eight of them faceted, the size of raspberries. No stones were found in the common duct. The gall bladder was drained by rubber drainage. The tube was removed in eight days. The patient was home in eighteen days, with a small fistula.

The following year, the sinus having remained open and there having been no pain nor jaundice, and the bowels having been regular, an operation for the closure of the fistulous opening was made by another surgeon and a small pocket near the fundus of the gall bladder, containing a slight amount of puriform material and three gallstones, was emptied. The gall bladder was again drained, the tube being removed after two days, there being a free flow of bile. The patient was discharged after two weeks with a small sinus.

After the first operation the flow of bile was very limited.

Subsequent history. One year after the last operation he is in perfect health. There has been no recurrence of the gall-bladder trouble. Fistula has closed. After working hard he feels pain or a pulling sensation at the site of the operation, but it amounts to comparatively little. A cholecystectomy might have been done very properly at either operation after the removal of all stones.

III. M. A., twenty-eight years old, a woman, married. *Gallstones, acute attack. No jaundice. Cholecystostomy, drainage. Small contracted gall bladder, many adhesions.*

She has two children, and has always been in good health. Five days ago she had an attack of severe pain in her "stomach," but did her work about the house. Two days ago pain of a similar character localized itself in the right side of the abdomen under the costal border, extending to the right shoulder blade. She vomited many times. There was no jaundice. The bowels moved naturally.

Examination. The abdomen was uniformly distended; the right half of the abdomen was rigid; there was marked tenderness in the right hypochondrium and to the level of the umbilicus upon the right side. No tumor could be felt. Vaginal examination discovered the uterus retroverted and lying a little to the right.

Operation. The peritoneum was exposed through an incision at the outer border of the right rectus muscle. The small intestine was found adherent to the anterior abdominal wall. The gall bladder was discovered beneath these adhesions as a rounded, hard, tense tumor extending to the level of the umbilicus. The gall bladder was incised, after protecting the parts about with gauze. The walls of the gall bladder were one-half inch thick, a glairy mucus was evacuated, and from the depths of the gall bladder came a puriform-looking material, and finally many small gallstones and two large stones. The culture from the contents of the gall bladder was the "bacillus coli communis." The gall bladder was attached to the peritoneum, a gauze wick below the bladder, rubber drainage of the gall bladder. Only a slight discharge of bile came from the gall bladder, and it was found that the tube was plugged by a few small stones, upon the removal of which the discharge became greater.

An uneventful convalescence; three weeks after leaving the hospital the fistulus opening closed.

Subsequent history. Cannot be found. The culture of the colon bacillus from the contents of a gall bladder shut off from the biliary circulation in the absence of jaundice need not preclude the doing of a cholecystectomy. Drainage in this case, however, proved apparently satisfactory.

IV. W. F., a woman sixty-six years old. Patient of Dr. Malcolm Storer, Boston, Mass. *Gallstone attacks. No jaundice. Cholecystostomy. Death from pneumonia.*

Twenty-five years ago she is said to have had typhoid fever; many years ago attacks of what was called gall-bladder colic. During the past two years and a half she has had many attacks. These attacks were associated with pain in the right hypochondrium, severe enough to double her up, attended by vomiting.

Examination. An old woman with moderately distended abdomen; an indefinable mass upon the right side under the costal arch, which was slightly tender. Jaundice was absent.

Operation. The gall bladder was found adherent to the anterior abdominal wall and to the transverse colon. The gall bladder was moderately enlarged. Upon opening it fifty stones were removed. The cultures from the gall bladder showed colon bacillus. The gall bladder was drained; bile appeared in twelve hours. On the second day the patient showed signs of a pneumonia,— the abdomen appeared normal,— and from this pneumonia the patient died.

V. C. A., a woman fifty-three years old, married. *Acute attack of gallstones. Jaundice. Choledochotomy. Cholecystostomy. Drainage. Recovery.*

For ten or twelve years she has had some stomach trouble, "dyspepsia." The bowels have been constipated. For one year she has been troubled each month by "bilious headache." These attacks have been attended by vomiting and jaundice, and she has noticed the stools have been clay-colored. She has never been severely jaundiced. Three days ago she had a sharp attack of pain in the right hypochondrium which she says resembled the bilious attacks which she has had during the past year.

Examination. The abdomen slightly distended;

no tumor felt. No especial tenderness over the region of the gall bladder, but at the mid-point of the abdomen, over the ensiform cartilage, there was marked tenderness. Incision at outer border of the rectus discovered a slightly contracted gall bladder adherent to the parts about. A small stone was found in this contracted gall bladder, and a large stone, larger than the end of the thumb, was found in the second part of the common duct, and was removed by incision through common duct, suture of duct. Drainage of gall bladder by rubber tube, gauze wick to common duct. Gradual closure of fistula Uneventful recovery.

Subsequent history. One year following the operation the report is that she has not been so well for years.

VI. N. G., a woman thirty-eight years old, married. A patient of Dr. Simpson of Boston. *Subacute attack of gallstones. No jaundice. Cholecystostomy. Recovery.*

Five months ago was the first attack, with pain in the region of the gall bladder. The pain radiated to the right shoulder. Since that time there have been frequent attacks lasting from two to nine hours. These attacks were attended by nausea and vomiting. At no time has there been jaundice.

Examination. The abdomen was generally soft, full and tympanitic. There was no unusual sensitiveness excepting over the gall-bladder region, where there was tenderness. No mass was felt.

Operation. Through the right semilunaris incision the gall bladder was found slightly distended, with some adhesions about it. No stone was felt in the ducts. The gall bladder upon being opened was found to contain thick, tarry biliary detritus and one small stone. Rubber drainage was used. The culture from the interior of the gall bladder showed many colonies of the bacillus coli communis. The color of the stools subsequent to the operation did not return to a normal condition immediately, but rather more slowly than usual. During convalescence there was some pain about the gall bladder and the costal border. The patient went home with a very slight sinus.

Subsequent history. After a few months the wound has closed. Has some pain at times referable to the right hypochondrium. Has had no acute attacks of gallstone pain similar to the attacks previous to the operation.

VII. C. B., a woman seventy-six years old, married. A patient of Dr. Mead of Winchester, Mass. *Acute attacks of gall-bladder pain. No jaundice. Cholecystostomy. Drainage. Recovery.*

Two months ago she had an attack of pain in the back of the neck and between the shoulders, and finally extending to the right hypochondrium, requiring morphia to relieve it. This pain was sharp and shooting in character. It doubled her up. She was somewhat chilly and hot, and distended, at the time of these attacks. She has had several each week since the first attack. The last attack was yesterday.

Examination. She was very thin, almost emaciated. The liver was not enlarged. There was no jaundice. There was slight tenderness and a little spasm over the gall-bladder region.

Operation. Incision at the outer border of the right rectus. No stone was felt in the gall bladder. A small stone was felt in the common duct. The gall bladder was opened and found to be very much thickened, contracted, and the stone felt in the common duct was pushed back and removed through the gall bladder. There were a few adhesions of the gall bladder to the neighboring parts. Drainage by rubber tube was used. A small amount of bile appeared, after a few hours, from the tube. Drainage was omitted and gradually the sinus was closed. The patient has had attacks of colicky pain in the bowels — "wind colic" — not like the previous pain. There has been no jaundice.

Subsequent history. During the past two or three months she has had more or less grumbling pain in the gall-bladder region, and a few weeks ago had quite a severe attack of pain resembling very much the passage of a gallstone. For several months now there has been no difficulty at all with the right side.

VIII. H., a woman fifty-four years old, married. She has had several children. *Cholecystitis. Subacute attack. No jaundice. Cholecystectomy. Recovery.*

She is said to have had "brain fever," pneumonia and at different times "pelvic abscesses." Two months ago she had a "bilious attack" accompanied by chills, backache and vomiting and pain, which extended from the right hypochondrium to the back and right shoulder blade. The present attack is of two weeks' duration and resembled the attack of two months ago. This attack was attended by much tympanites, nausea and needle-like pains extending from the navel through to the back and down to the right hip. During the past year she has had three attacks similar to this present one.

Examination. The abdomen was uniformly distended. In the right hypochondrium was a tumor which extended to beyond the median line and was continuous with the liver dullness. The tumor was movable, smooth and slightly tender.

Operation. Cholecystectomy. Drainage tube out upon the seventh day. An uneventful recovery. The contents of the gall bladder consisted of cloudy fluid, a few gallstones and inspissated bile.

Subsequent history. Three years after operation the patient has had no disturbance in the right side. She has, however, malignant disease, probably carcinoma, of the uterus, from which she is dying.

IX. I. C., woman thirty-nine years old, married. Patient of Drs. Abbott and Torrey, Andover, Mass. *Gallstone attacks. Temporary jaundice. Cholecystectomy. Recovery.*

She has no children and has had no miscarriages. Two years ago she had an attack of bilious colic. Every few weeks since that time she has had attacks of severe pain in the right hypochondrium attended by vomiting and temporary jaundice. She had lost some flesh during this period and was constipated.

Examination. A very stout woman with full abdomen presenting tenderness over the gall-bladder region. Conjunctivæ was slightly yellow.

Operation. Peritoneum was exposed by an incision through the middle of the rectus. No stone was felt in the common duct. A white, round, solitary stone was removed from the cystic duct. The gall bladder was small, thickened and edematous. There were many firm adhesions about the cystic duct. The contents of the gall bladder were mucus and a pasty bile sediment. No puriform material was found. The gall bladder was removed. A bit of omentum was placed over the stump of the cystic duct. Gauze drainage. Recovery.

Subsequent history. She has been perfectly well since the operation, now several months. Her general health has been better than for some years previous to operation.

X. A man thirty-five years old, married. Patient of Dr. Boucher, Watertown, Mass. *Gallstone at-*

tacks. Temporary jaundice. Contracted gall bladder. Cholecystectomy. Recovery.

For five or six years he has had attacks of abdominal pain. Lately this pain has been limited to the right side of the abdomen below the ribs, radiating to the umbilicus. These attacks have been attended by vomiting and slight temporary jaundice. The bowels are constipated. The attacks have increased in frequency and severity. The present attack has been a week in its duration. The pain has been very acute, necessitating morphia for its relief, localized in the right hypochondrium and attended by nausea, vomiting and chilly sensations.

Examination. Abdomen markedly distended; no tumor could be felt. There was tenderness on deep pressure over the region of the gall bladder. There was a slight yellowishness of the conjunctiva.

Operation. Peritoneum was exposed from the belly of the rectus. The gall bladder was with difficulty found buried in omental adhesions. A few stones were discovered just outside the gall bladder in a pocket within the omentum. The gall bladder was markedly contracted upon many stones. Cholecystectomy. Gauze and tube drainage. Recovery.

Subsequent history. Seven months following operation he is in perfect health. He has had no recurrence of former attacks and has no digestive disturbance. The scar is firm and there are no signs of hernia.

XI. G. F., a woman forty-nine years old, married. A patient of Dr. Leitch of Andover, Mass. *Persistent jaundice. Gallstone attacks. Contracted gall bladder. Cholecystectomy. Recovery.*

She has three children. Six months ago she is said to have had a severe attack of "dysentery"; otherwise she has been well. One year ago she was seized with a severe pain under the right shoulder extending down the side and around into the right hypochondrium. This attack was preceded by nausea. At no time has there been vomiting. During this past year attacks of a similar sort have occurred as often as each two weeks. These attacks have required morphia to relieve the pain. Occasionally she has had chills with these attacks. During the past few weeks she has lost some flesh, during this present attack her best weight being 198 pounds.

Examination found a stout woman with a large abdomen, rather flabby, not particularly distended. Slight tenderness was felt over the region of the gall bladder. Very little, if any, muscular spasm. Conjunctivæ and skin yellow; urine containing bile.

Operation. Peritoneum opened in the right linear semilunaris. A contracted gall bladder found. Stones in lower part of gall bladder and cystic duct and all deeper ducts free. Gall bladder removed. Drainage by gauze. An uninterrupted recovery.

Subsequent history. The operation was eleven months ago. She has gained over fifty pounds in weight since the operation. She says she is in fine condition, and has no trouble with her side excepting a tiny bit of tenderness in the situation of the scar.

XII. O. T., a woman twenty-five years old, married. A patient of Dr. G. G. Bailey of Ipswich, Mass. *Acute cholecystitis. No jaundice. Cholecystectomy. Recovery.*

A normal confinement four weeks previous to present trouble. Always has had some indigestion; otherwise well. Five days ago was seized with sudden pain in the right hyponchondrium. Vomiting; some fever. Considerable morphia was administered to relieve the pain. Pain was at the edge of the ribs on the right and then moved a little lower toward the umbilicus. No jaundice.

Examination. A nervous, rather thin, but not ill-appearing woman. Tongue coated. Moved herself rather easily in the bed. The abdomen was not distended. There was a muscular spasm on the whole right side of the abdomen. A distinct tumor was felt projecting below the right hypochondrium to the level of the umbilicus. This tumor did not move freely with respiration. The tumor was tender to pressure.

Operation. Peritoneum was opened to the right linear semilunaris. The tumor felt externally was found to be the distended gall bladder filled with clear mucus-like fluid. A yellow, sandy slime was found in the depths of the gall bladder and in the cystic duct. There were no old adhesions about the gall bladder. The foramen of Winslow was patent. There were no gallstones to be felt in the common duct. The gall bladder was removed. Tube and gauze drainage. Uninterrupted recovery. Pathological report: "Acute ulcerative cholecystitis. W. F. Whitney."

Subsequent history. Six months following operation there has been no difficulty with the right side and she is in good health: "My general health has not been so good for years as it is at the present time."

XIII. N. C., a woman thirty-two years old, married. A patient of Dr. G. G. Bailey, Ipswich, Mass. *Gallstones. Acute attacks. Contracted gall bladder. No jaundice. Cholecystectomy. Recovery.*

She had eight children. Ten years ago, she is said to have had typhoid fever. Over a period of two years, at intervals of about three months, she has had continuous pain in the right hypochondrium, colicky in character, extending to the middle of the back, lasting from a few hours to a day. This pain has been relieved by the taking of a cathartic. She has never been obliged to take morphia until recently. These attacks have increased in frequency and severity. The last attack was two weeks ago. The pain was very sharp, colicky, taking away her breath for the time. There was nausea, some vomiting and slight jaundice. Urine dark in color. Had lost some weight recently. Her best weight was 208 pounds.

Examination. A large, well-developed woman presenting a large abdomen with a tender area in the region of the gall bladder and a similar tender area in the back to the right of the vertebræ. There was no muscular spasm. No tumor was felt. The liver was not enlarged.

Operation. An incision through the right rectus discovered the gall bladder much contracted and bound by dense adhesions to the liver, to the large intestine and to the duodenum. The gall bladder was found full of slimy granular material; the cystic duct was dilated and plugged with a gallstone; the common duct was patent. The gall bladder was removed and cystic duct tied and gauze drainage used. All wicks were removed at the end of six days. The patient went home at the end of three weeks.

A gall bladder about 6 cm. in its greatest diameter, outer surface rough and covered with an old fibrinous exudate. The walls were thin and fibrinous and the cavity contained several small gallstones. The mucosa was almost entirely necrotic. Cholelithiasis.

Subsequent history. A few months following operation there has been no recurrence of the difficulty. She is in good health.

XIV. E. D., a woman fifty-four years old, married. A patient of Dr. Bump, Somerville, Mass. *Spontaneous biliary fistula. Cholecystostomy. Closure*

A SERIES OF CERTAIN GALL BLADDER AND BILIARY DUCT OPERATIONS.

No.	Sex and Age.	Operation.	Immediate Result.	Pathological Findings.	Symptoms and Signs.	Duration of symptoms referable to gall bladder, although some signs were obscure.	Previous Diseases.	Remote Result.
I.	Woman 46 yrs.	Cholecystostomy	Recovery	No stones, glairy mucus, pasty sediment.	No colic, gall-bladder pain, no jaundice.	6 years		For 2 yrs. no attacks of colic, then 1 attack
II.	Man 64 yrs.	Cholecystostomy	Recovery	Stones in cystic duct, thick mucus, inspissated detritus, culture sterile.	Acute cholecystitis, no jaundice.	48 hours	Diarrhea protracted Civil War.	Past 10 mos. immunity; general health good; no further attacks; feels some pulling at wound after work.
III.	Woman 28 yrs.	Cholecystostomy	Recovery	Few stones, mucus, puriform material, culture colon communis.	Gallstone colic, no jaundice.	5 days		Not found.
IV.	Woman 68 yrs.	Cholecystostomy	Died	Many stones, culture colon bacillus.	Gallstone colic, no jaundice.	Many years	Typhoid fever 25 years ago.	Died—pneumonia.
V.	Woman 53 yrs.	Cholecystostomy	Recovery	Stone gall bladder and common duct.	Gallstone colic, jaundice.	10 years		Well, no trouble one year after.
VI.	Woman 38 yrs.	Cholecystostomy	Recovery	Stone, thick tarry biliary detritus, culture colon bacillus.	Gallstone colic, no jaundice.	5 months		After few months no attacks; some discomfort in right side.
VII.	Woman 76 yrs.	Cholecystostomy	Recovery	Stone common duct.	Gallstone colic, no jaundice.	2 months		Grumbling right side mild attack.
VIII.	Woman 54 yrs.	Cholecystectomy	Recovery	Stones, cloudy fluid, inspissated bile.	Gallstone colic, no jaundice.	2 months		Well, no trouble for 3 years.
IX.	Woman 39 yrs.	Cholecystectomy	Recovery	No stones, mucus, pasty biliary sediment.	Gallstone colic, temporary jaundice.	2 years		Well, no trouble for several months.
X.	Man 35 yrs.	Cholecystectomy	Recovery	Stones, no fluid.	Gallstone colic, temporary jaundice.	5 years		Well, no trouble for 7 months.
XI.	Woman 49 yrs.	Cholecystectomy	Recovery	Stones, no fluid.	Gallstone colic, persistent jaundice.	1 year		Well, no trouble for 11 months.
XII.	Woman 25 yrs.	Cholecystectomy	Recovery	No stones, mucus, cloudy fluid, biliary slime.	Acute cholecystitis, no jaundice.	5 days		Well, no trouble for 1 year.
XIII.	Woman 32 yrs.	Cholecystectomy	Recovery	Stone cystic duct, slimy biliary detritus.	Gallstone colic, no jaundice.	2 years	Typhoid fever 10 years ago.	Well, no trouble for few months.
XIV.	Woman 54 yrs.	Cholecystectomy	Recovery	No stones, clear bile.	Biliary fistula, no jaundice.	18 months		Well, no trouble for four months.
XV.	Woman 26 yrs.	Cholecystectomy	Recovery	No stones, clear mucus, culture staphylococcus.	Acute cholecystitis, no jaundice.	4 days		Well, no trouble for few months.
XVI.	Woman 40 yrs.	Cholecystectomy	Recovery	No stones, clear bile.	Biliary fistula, no jaundice.	Many years		Well, no trouble for a month.

of wound. Gall-bladder pain. Temporary jaundice. Cholecystectomy. Recovery.

Eighteen months ago a biliary fistula established itself without operation, and one year ago an operation was done exploring this fistula. The fistula was dilated and it was found to connect with the cavity of the gall bladder, from which a stone the size of an English walnut was extracted. The gall bladder was attached to the skin and drained through a glass tube. Drainage was removed in eleven days. Three weeks later the wound closed. She was practically well up to three months ago, when she began to have cramp-like pain in the right side of the abdomen extending up to the nipple. This pain doubled her up, the paroxysm lasting some twenty-four hours. She has become recently jaundiced. The pain is attended by vomiting and nausea. She has lost some 30 lbs. in weight.

Examination. The abdomen is rather flat, tympanitic, with a slight dullness over the region of the lower border of the liver on the right side. There is marked muscular spasm and great tenderness over the gall-bladder region. There is a tender spot in the back. White count 19,000.

Operation. An incision through the belly of the right rectus. The omentum was found adherent to the abdominal wall and about the gall bladder. Gall bladder also adherent to the intestine and to the duodenum and to the upper end of the old incision. It was difficult to separate it from its adhesions. The gall bladder was very much elongated and looked and felt something like thickened intestine. It was opened and clear bile evacuated. No stones were seen. There were no stones in the ducts. The gall bladder was removed and a plastic of peritoneum placed over the stump. Two wicks for drainage. After operation there was considerable discomfort. The stomach was washed out with great relief.

The patient went home in about three weeks with a very slight watery discharge from a small fistulous opening.

Subsequent history. After four months this patient is perfectly well and comfortable. There is no difficulty with the right hypochondriac region. The wound is entirely closed.

XV. A. J., woman twenty-six years old, married.

Patient of Dr. Dow of Reading, Mass. *Acute cholecystitis following two cholecystostomies. Enlarged gall bladder. No jaundice. Cholecystectomy. Recovery.*

She had four children. Four days ago she was seized with a sudden pain over the gall-bladder region and vomited once. The following day the pain increased and she vomited again. Upon the third day of the attack there was less pain and no vomiting. Yesterday, the fourth day of the attack, there was no pain, but there was soreness in the right side upon moving in bed. The bowels moved after taking salts. There was no jaundice. There were no clay-colored stools and there was no dark urine. One year ago a cholecystostomy was done, and six months ago a second operation was done. At both operations gallstones were removed from the gall bladder.

Examination. A stout woman presenting a tympanitic abdomen somewhat distended and a mass the size of the fist in the region of the gall bladder, which moved with respiration. Underneath a cicatrix of the former operations. The abdominal wall was attached to this underlying mass. There was tenderness and muscular spasm over this mass.

Operation. An incision in the right semilunaris discovered a very much thickened and enlarged gall bladder filled with clear mucoid fluid. The deep ducts were free from stones. The gall bladder was removed; the cicatrix excised at the same time. Gauze drainage. Culture fluid from the gall bladder showed staphylococci. Patient went home after about four weeks having a small discharging sinus.

Subsequent history. The sinus has closed. After a few months has had no recurrence of difficulty. General health is good.

XVI. C. H., woman forty years old, married. *Symptoms of gallstones. Cholecystostomy. Stone in cystic duct removed, flow of bile. Drainage. Persistent biliary fistula. Cholecystectomy. Recovery.*

She has had attacks of epigastric pain for many years, at intervals of about five months. Severe cramp-like pain accompanied these attacks. She has never been jaundiced all these years. Laid up at these times three or four days. The last attack was four weeks ago. She has lost some weight, but not rapidly. Ten days ago she had dull epigastric pain, at first intermittently, but for seven days it has been continuous, in median line, two inches below ensiform cartilage, never colicky or cramp-like. No chill. Vomited greenish material several times. She has never vomited blood. For one week her skin and conjunctivæ have been yellow. The urine has been dark. Stools have been green. Now the pain extends from the median line out to the region of the gall bladder and back to between the shoulders.

Examination. Poorly nourished. Abdomen not distended, tympanitic excepting at ninth costal cartilage, where there is a limited dullness and corresponding muscular spasm. The edge of the liver is not to be felt.

In May cholecystostomy. Stone removed from the cystic duct. Bile then came from deep passages. No stone in the common duct. Small gall bladder. Coagulation time,—four minutes. Wound solid in June.

Operation in September for persistent biliary fistula. Incision through right rectus. Adhesions between omentum, intestine and abdominal wall. Gall bladder found attached to the abdominal wall. Cholecystectomy. One wick to stump of the cystic duct. A slight biliary fistula existed for a few weeks.

One month after operation biliary fistula closed. Wound granulating and nearly closed. Never better health for years.

Clinical Department.

A CASE OF PYLORIC STENOSIS IN AN INFANT.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

ALTHOUGH this affection has been reported more frequently of late years, the difficulties in the way of an early diagnosis make it desirable to throw as much light as possible on the subject by the report of cases.

The following case was seen frequently in consultation with Dr. A. E. Rogers. We had also the advice of Drs. C. P. Putnam, J. L. Morse, Rotch, Ladd, A. Thorndike and J. C. Munro.

A. B., male, born Aug. 22, 1903, weighed seven pounds. After ten days on the breast, the supply failing he was placed on modified cow's milk and progressed well until Sept. 12, at which time he weighed eight and one-half pounds. During this time he was having three or four stools daily and there was no vomiting. On Sept. 12, at the age of three weeks, he began to vomit occasionally at first, but with increasing frequency, so that on the 22d of September he was vomiting every fifteen minutes whether food was given or not. Early in October it was evident that by careful feeding it was possible for the baby to retain its food for several hours, but at the end of that time, the stomach contents would be forcibly ejected, sometimes to a distance of several feet. At times he would continue for several days with practically no vomiting, as was the case from the 16th to the 19th of October, on barley water containing a few drops of cream gradually increased in strength. In fact nearly every change succeeded for a while, but the vomiting always recurred eventually. Various weak formulas of cow's milk and whey modified with water, barley water or dextrinized barley were used, as well as the milk of a wet nurse, sucked by the infant from the breast, or pumped out and diluted with water or barley water. Barley water alone, albumen water and meat juices and broths were all tried, but with all the vomiting was sure to return. Bicarbonate of soda in grain doses every hour was given by the mouth, apparently with good effect at times. Bismuth and pepsin had no effect. Bromide by the rectum and bicarbonate of soda in large doses were also used without avail. Lavage also proved useless. When much reduced, salt water infusions under the skin helped to make up the deficiency of fluid in the blood.

After the first it was found impossible to nourish the child or even give medicines by the rectum, as any manipulation in that region brought on vomiting. During most of the illness, especially when vomiting was most severe, there was some tetany, as shown by the drawing in rigidly of the thumbs to the palms of the hands. The vomitus during the first few days contained bile, but never after this. At no time was there mucus or evidence of indigestion, the food sometimes coming up exactly as it went down, at other times showing the effect of acid digestion. The stools, although scanty and far between, as might be supposed from the small amount of food passed beyond the stomach, showed perfect digestion.

From the 27th of October to Nov. 5 the baby did excellently on top milk modified by dextrinized gruel. The stools were large and well digested, and although vomiting never entirely ceased he began to lose his pinched and atrophied appearance. His spirits were

good and everything seemed to point to his recovery. As vomiting returned in force, however, he was put back on dextrinized barley water alone and milk gradually added. With varied fortunes he continued until Nov. 16, when the propulsive vomiting returned as badly as ever. At no time until the 17th could anything abnormal be felt in the abdomen, which was rather flat. At that time a hard tumor could be felt in the epigastrium, and peristalsis of the stomach was made out.

From early in the case it seemed to us that it was one of spasmodic pyloric obstruction, with no evidence of gastric indigestion, or of organic stricture. The intervals of apparently nearly complete recovery with cessation of vomiting and good dejections seemed to negative the latter idea.

With the last return of vomiting it seemed unwise to wait longer, but to submit the child to an exploratory laparotomy at least, before it should succumb from starvation. With this Dr. J. C. Munro agreed. The appearance of a tumor in the epigastrium of course confirmed this decision. On Nov. 19 Dr. Munro performed gastro-enterostomy. The baby rallied well from the operation, but died twenty-three hours later of exhaustion.

A report of the examination of the organs by Dr. G. B. Magrath follows:

Specimen consists of stomach; esophagus and part of lesser curvature absent, with attached segment of small intestine, received in formalin. Length of cardia to end of pylorus 6.5 cm. Length of pylorus 1.5 cm. Diameter of pylorus 1.3 cm. Pylorus is thick, firm and rigid; its lumen is thick, — having been opened, — probably 2 to 3 mm. in diameter. Upon section its walls are about 6 cm. in thickness, the outer two-thirds consisting of a transparent layer 3 to 4 mm. across. The mucous membrane at the gastric end of the pyloric canal, thick and folded. Attached to sutures to the posterior wall of the stomach is a segment of small intestine; the organs in communication from an anastomotic opening, 1.5 cm. in diameter, with roughened edge. The union of the wound structures is firm and in part due to adhesions.

Microscopical examination of sections from the wall of the pylorus at about its middle portion shows extensive hypertrophy of the muscle coats: the muscularis mucosæ shares in this to a slight extent, but the greater part of the thickening is due to increase in the outer muscle coats. The mucous membrane presents a prominent fold but is otherwise not remarkable.

Diagnosis. Hypertrophy of the pylorus with associated narrowing of its lumen. Gastro-intestinal anastomosis.

Summary: An infant, healthy at birth, began to vomit at the end of three weeks. By careful regulation of the diet the vomiting improved at intervals, but as often returned. The vomitus showed no signs of gastric indigestion; it was projectile in character and often made up of several feedings. Constipation was a feature, but the stools when passed were normal in character. Emaciation became extreme. A visible and palpable tumor appeared in the epigastrium with dilatation and peristalsis of the stomach.

Gastro-enterostomy was performed successfully as regards the operation, but death ensued in twenty-three hours, at the age of three months, after an illness of ten weeks.

The autopsy showed hypertrophy of the pylorus, chiefly of the outer muscular coats, with narrowing of the lumen.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR SURGERY.

A MEETING for this section was held at the Medical Library on Wednesday evening, Dec. 2, 1903.

DR. F. B. HARRINGTON was unanimously elected Chairman for the winter and at once took the chair.

The section, after discussing the question of holding regular meetings this winter, voted unanimously that meetings should be held and that the details of arrangements be left to the President and Secretary.

The chairman then introduced the general subject of discussion for the evening:

SURGERY OF THE GALL BLADDER.

DR. F. B. HARRINGTON: The surgery of the appendix vermiformis is now ancient history compared with the surgery of the gall bladder; yet the surgery of the gall bladder and the gall ducts is perhaps even more important, certainly it is more difficult than the surgery of the appendix. The pursuit of the appendix frequently led to the gall bladder in supposed cases of appendicitis. The evil effects of gall-bladder disease and of gallstones are very wide spread. It affects, not only the liver and the various bile ducts, but the stomach, the pancreas and the intestines, producing at times in these organs conditions, which if not relieved by operation, may be fatal. Thus we have intestinal obstruction from gallstones or from bands and adhesions, the result of pericystic inflammation. We may have acute pancreatitis and fatal hemorrhages from this cause, or we may have stricture of the pylorus from bands and perigastric inflammation, resulting in gastric obstruction and dilatation. We may have cholangitis and hepatic obstruction from the same cause.

It is a rule, almost without exception, to remove the appendix when operation is called for in all forms of appendicitis. What shall we do with the gall bladder? We cannot argue because the appendix is better out than in that the gall bladder is better out than in.

There are conditions in which all would agree that it is unwise to perform cholecystectomy as, for example, the obstruction of the common duct by inoperable malignant growth, where, by uniting the gall bladder to the duodenum or the colon, drainage for the bile can be obtained. Again, many would say in empyema of the gall

bladder, or in cholangitis, that drainage of the gall bladder was the safest and wisest course. The gall bladder is the origin of the trouble, and if it could be removed without harm of any sort, present or future, it would be better out of the way. Gallstones form from inflammation and infection, but only where there is stasis in the biliary current. If gallstones form in the smaller hepatic branches, such formation will be secondary to inflammation and obstruction lower down.

These considerations lead to the questions which have been printed in the call for this meeting.

WHAT ULTIMATE DAMAGE MAY BE DONE BY REMOVAL OF THE GALL BLADDER?

WHEREIN IS THE RISK OF CHOLECYSTECTOMY GREATER THAN THAT OF CHOLECYSTOSTOMY?

IN HOW MANY CASES OF CHOLECYSTOSTOMY HAVE YOU KNOWN A SECOND OPERATION TO BE NECESSARY?

DO GALLSTONES EVER FORM IN THE OTHER BILE PASSAGES AFTER REMOVAL OF THE GALL BLADDER?

DR. A. T. CABOT said perhaps the easiest way to state his feeling as to the wisdom of cholecystectomy was to enumerate the cases in which he should not do the operation. In cases of infection of the bile ducts in which drainage seemed to be a necessary part of the treatment, he would keep the gall bladder for that drainage, especially in cases of chronic pancreatitis, which have been shown to be so greatly benefited by a long drainage of the biliary passages. He would also leave the gall badder in a case of cholelithotomy, where he was doubtful whether all of the stones had been removed. He would also leave it in acute cases of gall-bladder inflammation, where the end of the gall bladder was readily accessible, and where everything was tied up in such a way as to make the separation of adhesions a serious additional risk to the operation. He reported cases in which he showed that removal of the gall bladder was wise for biliary colic, depending on kinks of the gall bladder, or of the gall ducts.

Dr. Cabot's practice has been steadily tending in the direction of taking out more and more gall bladders. He recalls only one case where gallstones actually re-formed after a case of cholecystostomy. He had met several cases operated upon by other surgeons, and also by himself, in which stones not found at the first operation had been taken out later. He believed that in most of these cases the stones were concealed in the hepatic ducts, and, therefore, not found at the first operation. With the gall bladder removed, he thought the conditions less favorable for the future formation of stones, as the place where stasis of bile occurred would be removed.

DR. H. O. MARCY spoke briefly of the history of gall-bladder surgery in Boston and of the likelihood of its development in the near future. He also mentioned some interesting cases of choledochotomy.

DR. F. B. LUND stated that the question of removal of the gall bladder did not depend so much on the ultimate effect on the patient, as it was well known that the removal of the gall bladder apparently did not affect the general health, but the question to be considered in regard to the removal of the gall bladder rather was, whether it was immediately the safest course for the patient.

Gangrenous, thickened and cystic gall bladders, which were apparently incapacitated from emptying themselves of bile, would better be removed in the majority of cases, but in ordinary gallstone operations, where the gall bladder showed little or no abnormality, except that it contained stones, the organ would better be left. Stones in themselves are evidence, not only of stasis, but of infection in the gall bladder, and wherever infection exists in the gall bladder or ducts drainage of the ducts is fully as important a matter as the removal of the stones. This can be more safely accomplished by using the gall bladder as a tube to drain the ducts than by removal of the gall bladder and tying a tube in the cystic or common duct. Wherever it is known that there was infection of the ducts, drainage is imperatively demanded and best accomplished by cholecystostomy. Wherever it is suspected that the ducts are infected — and this class will include the larger number of gallstone cases — cholecystostomy, with drainage of the gall bladder, is safer than cholecystectomy. After cholecystectomy, it is safer to provide drainage of the cystic duct, and in case of doubt, where there are stones in the common duct, to open that duct and drain it, whether stones can be felt or not.

Suture of the common duct is always a dangerous practice, and whenever it is incised it should be drained freely by tying in a full-sized tube. Some gallstones in the common duct may be impossible to feel, because the duct is so distended and its walls so thickened that the light stone floating in the fluid makes no impression on the finger. Wherever there are symptoms of common duct stone, and the duct is found dilated, even if no stone can be felt, it should be opened, and the stone will generally be found. Cases illustrating this point were briefly related.

DR. E. W. CUSHING: In considering the question of removing the gall bladder, the analogy with ablation of the appendix must not be pushed too far, for while the latter is apparently an organ with little or no function in the human race, and a mere anatomical survival, useless and prone to degenerate, the gall bladder has a definite function. It is clear that a continual discharge of bile into the intestine is not requisite or desirable and that the gall bladder not only serves as a reservoir for the storing of bile until it is needed in digestion, but that as a flush-tank it can at intervals expel its contents in such a way as to clear the bile duct of infective agents, which are always trying to enter from the intestinal canal.

If, then, the condition of the gall bladder is such that it can resume and exercise its proper function, it is best to preserve it, and the burden of proof is on those who would advocate its removal. The operation of cholecystectomy is not yet old enough for us to know what disadvantages may ultimately follow from loss of a functioning gall bladder, although it is of course conceded that it is better to remove this organ when it is functionless, hopelessly diseased and a source of danger in itself. In regard to the comparative danger of the two operations, it seems to me that although in selected cases, and in the hands of expert operators of large experience, cholecystectomy is as easy and as safe as cholecystostomy, yet in patients who are fat and feeble, or whose systems are oppressed with biliary absorption, the latter operation is very much easier and safer. It must not be forgotten, moreover, that these operations must be done by many surgeons who are not particularly expert and have no very wide experience, for as things are going now in the multitude of small hospitals perfectly ideal conditions do not always prevail.

Moreover, when the gall bladder is removed and its duct is tied, we lose the advantages of free drainage, which may be required by the condition of the common or hepatic ducts, or by the presence of stones in these ducts which have not been detected at the operation. It is well known that such overlooked stones will find their way out when the gall bladder is attached to the abdominal wall and drained. I have known stones impacted in the common duct, and detected but not removed at the operation, owing to the grave condition of the patient, to find their way out safely weeks afterward. I have known only one case in which stones kept coming out for over a year, thus keeping open a mucous fistula, communicating with the gall bladder. In this case, however, all the stones were small and had sharp edges, and were apparently pieces of a large stone, which had been broken in dislodging it at the time of operation. The fistula finally closed without subsequent trouble. I have no knowledge of my own as to whether gallstones ever form in the other biliary passages after removal of the gall bladder.

Dr. J. C. Munro agreed with Dr. Cabot in the importance of preserving gall bladders that would eventually return to a normal condition, especially on account of the value of the gall bladder as a drain for the pancreas. He had known of four of his cases which required another operation after cholecystostomy. He could not tell whether stones had re-formed or had been left in the bile passages at the original operation. In three of these he had performed the original operation. He always guided his decision by a suggestion of Mayo's, that the gall bladder should be removed if it were functionless, as in gangrene, obstruction of the cystic duct, or atrophy. He was strongly in favor of not removing normal gall bladders, *i. e.* those which could perform their function, or when the surgical indications at time of operation pointed to an unjustifiable risk in removal of the gall bladder as contrasted with simple drainage.

The question for discussion was, not whether a gangrenous or a malignant and totally useless gall bladder should be removed, but whether an otherwise normal organ, except for the presence of gallstones alone, should be removed or drained. For his part, he still believed in preserving and utilizing such gall bladders.

Dr. Frederick Winslow: I have been studying the end results of all the gall-bladder operations done at the Massachusetts General Hospital from January, 1894, to January, 1903, and think that the bare unvarnished facts in figures may throw some light on the relative value and danger of cholecystostomy and cholecystectomy as operations *per se*, although in the majority of the unsuccessful cases of either kind, the untoward results are due, not to what is *done* to the *gall bladder*, but to what is not done to the deeper biliary passages.

Excluding 13 for malignant disease there were 170 cholecystostomies. Of these 21 died a few days after the operation; 27 came to a second operation; 29 are unrelieved from one to five years after operation; 4 have had fistulas two to four years without symptoms; 46 have been well one to seven years, save for very slight occasional symptoms; and 43 have not been heard from since leaving the hospital. Excluding two for malignant disease, there were 44 cholecystectomies. Of these 9 died within a few days after operation; none came to a second operation; 2 died with symptoms unrelieved, one ten months, the other two and a half years after operation; 2 (in which the choledochus was drained) have been relieved, but still have fistulas one and one and a half years later; 22 have been completly relieved, one to nine years; and 9 have not been traced since leaving the hospital.

It will be noticed from these figures that although the mortality of the cholecystectomies is 20.4% (9 out of 44) while that of the cholecystostomies is 12.3% (21–170), yet, on the other hand, the percentage of cholecystostomies which have been completely cured is but 36.2% (46–127), while for the cholecystectomies it is 62.8% (22–35). This is certainly significant of much, in spite of the dictum, often enough true, that *la statistique est la mensonge en chiffres;* and cholecystostomy must be regarded as an emergency operation only, an elementary and preliminary performance, one which in itself cures only one out of every three cases.

Dr. S. J. Mixter: The subject of gall-bladder surgery is always an interesting one, especially as there are many points in technique and choice of operation that are far from being settled. The point that has been of perhaps the greatest interest to me is the question of the removal of the gall bladder, and I find that I have gradually come to a view where I seldom leave it. There is no doubt but that drainage

will serve in many cases of acute or chronic infection, either with or without stones, but I find that there is little if any more risk in the more radical operation, and that the results seem on the whole more satisfactory.

At first I removed only those that were greatly thickened, where perhaps the stones were so imbedded in pockets in the wall that their complete removal was almost an impossibility. The next step was the removal of the small contracted ones, so often found containing a single or few stones and deeply buried in adhesions; acutely inflamed and gangrenous ones came next; and, finally, the comparatively normal organ containing a stone or stones.

The greatest objection that has been made to cholecystectomy, aside from its greater difficulty, has been that drainage is more difficult. Now I have never seen a case where it was not possible to get good drainage by means of a rubber tube passed through the stump of the cystic duct, or into the common duct when that had been opened. A ligature or suture holds the tube in place and a packing of gauze protects the abdominal cavity.

In suitable cases where the abdomen is opened for any reason, I make it a rule to examine the gall bladder by touch, and if stones are felt, the condition of the patient being good, I close my incision in the usual manner if it be a low one and expose the gall bladder by the usual incision. For the past two years I have removed such gall bladders without opening them, and never have had occasion to regret it. Gauze drainage has never been omitted.

As regards the subsequent history of the patients, I can say that I have never seen a case where the loss of the gall bladder has been the cause of any unpleasant symptoms, and there have been no recurrences of attacks and not nearly so much complaint of the pain caused, I suppose, by the pull of the scar on the gall bladder following drainage.

In gangrenous inflammations the results are perhaps the most thoroughly satisfactory. In one case while removing such a gall bladder which had not perforated, a large abscess was found in the liver, or between it and the liver, the patient making a rapid recovery. There is one class of cases in which I have always left the gall bladder and perhaps always shall, that is, in pancreatitis.

There is no doubt but that the operation of cholecystectomy is more difficult than that of simple opening and tying in a tube, and hence the inexperienced surgeon should choose the less dangerous operation; but I am sure that in the hands of quick and experienced men the operation of cholecystectomy will become largely the one of choice.

DR. E. A. CODMAN showed four gall bladders which he had removed because of stones impacted in the cystic duct. Two had made perfect recoveries. One of the others was complicated by the presence of a fistulous opening between the gall bladder and duodenum, stones in the hepatic and common ducts and an abscess between the gall bladder and liver. This gall bladder was exceedingly small. The case eventually died from leakage of the duodenal suture.

The fourth case was interesting as showing that gallstones may form again after cholecystostomy. Dr. Codman had done the latter operation on this patient two and a half years ago. Complete relief had followed for six months, and then very severe symptoms began again and the patient rapidly lost ground. Owing to her persistent vomiting, nourishment was almost impossible. Though she had greatly abused morphine, it was felt that there must still be some trouble with the gall bladder. At times she had attacks of jaundice and pain. One year after the first operation he therefore removed the gall bladder. The specimen shows a stone impacted in the cystic duct and the gall bladder filled with stones of entirely different appearance from those removed at the first operation.

This patient was unable to retain any nourishment after the operation, vomited incessantly and died at the end of three weeks. The autopsy showed no adequate reason for death except the emaciation due to starvation.

He thought that since he could detect no stones in the common duct at the original operation, and since at the second operation he found the cystic duct occluded with a very small stone, although the stones in the gall bladder were large, and since at the autopsy only three weeks later no stones whatever were found in the common or hepatic ducts, the only rational conclusion is that all the stones were formed in the gall bladder. He believed that had he done cholecystectomy at first he would have saved the patient. When in doubt he thought it was wise to remove the gall bladder.

DR. F. B. HARRINGTON: The absence of the gall bladder and its functions, as far as I have observed, is not injurious to the individual after recovery from cholecystectomy. Some surgeons with large experience in cholecystostomy state that gallstones do not re-form — Robson, Mayo and Kehr. Other surgeons report cases of re-forming gallstones. I have had myself three cases where a year or more after cholecystostomy and drainage attacks of colic and jaundice have recurred, suggesting the passage of gallstones. Dr. Codman has shown us here tonight a gall bladder removed a year or more after cholecystostomy, in which gallstones totally unlike the original ones were found. I doubt if sufficient time has elapsed to determine definitely how frequently re-formation of gallstones occurs in a gall bladder which has been drained. I believe that a gall bladder which has once developed gallstones may do so again.

At the present time I feel that in uncomplicated cases, that is, on the discovery of a gall bladder with gallstones, whether the cystic duct be open or not, and with a patent common duct, that I am doing better surgery to remove

the gall bladder, no matter how nearly normal it seems. I think one should always allow for possible leakage, leaving a gauze drain down to the stump for one, two or three days. In cases of acute cholecystitis and cholangitis without obstruction, I should be governed largely by the condition of the patient in deciding whether the gall bladder should be removed or not. If tubage of the common duct is as satisfactory as described by Kehr, I cannot see the advantage of drainage by the gall bladder except to save time. I think that an objection to bringing the gall bladder to the surface exists because this drags upon the common duct and may cause kinking of the duct.

I have a case of cholecystostomy in which the gall bladder apparently is occasionally caught in a hernial opening of the scar. This causes extreme suffering, which is not relieved until what seems to be the gall bladder is pushed back through the hernial opening by pressure. On one occasion in this patient's case, an attack of this sort has been followed by temporary jaundice, which I think may have been due to obstruction from kinking by the pulling of the gall bladder on the common duct. While I do not believe in the removal of the gall bladder in every case. I should advise its removal in a majority of cases of disease of the gall bladder and bile ducts due to gallstones.

Dr. J. W. Elliot and Dr. H. H. A. Beach were not able to be present at the meeting, but have contributed the following expressions of their opinions for publication.

Dr. J. W. Elliot: The ultimate damage done by removal of the gall bladder may be of two sorts. In the first place, we do not know the exact function of the gall bladder, and therefore it may prove more important than we at present suppose. I do not believe that surgery is likely to improve the normal human body. Witness the growth of opinion in favor of myomectomy as against hysterectomy and in favor of conservative operations on the tubes and ovaries and other organs. The second sort of damage may come from its injudicious removal when there is a stone or disease in the common duct. Patients are often sent to surgeons in the later stages of gallstone disease, with profound cholemia or severe cholangitis, and with more or less diseased liver and kidneys, in a condition very unfavorable for a severe surgical operation. In such cases I believe a preliminary cholecystostomy, with drainage of the ducts and liver through the gall bladder, will be attended with a considerably lower mortality than the immediate removal of the gall bladder, with drainage of the common duct direct. In cases where cholecystectomy has been done and symptoms of cholangitis continue or jaundice appears, we have no choice but to drain the common duct, regardless of the patient's condition.

Speaking simply of the technique of the operations I think cholecystectomy is as simple as cholecystostomy, and should have about the same mortality. If the mortality is higher in cholecystectomy it is probably due to some of the reasons given above. I have known a second operation to be necessary in quite a number of cases of cholecystostomy, but as the operation in most of these cases was intended to be only preliminary and often life-saving, a second operation naturally followed. I have also occasionally made the mistake of trying to save a gall bladder too much diseased, which proved to be troublesome and therefore had to be removed later.

I do not know if gallstones ever form in other bile passages after removal of the gall bladder, but I have often found them in the hepatic and common ducts when there were no signs of their ever having been in the gall bladder, and in one case I remember finding hundreds of small stones in the hepatic duct and liver with a normal gall bladder. In this case the stones were evidently forming in the liver.

For the reasons given above I do not believe in the almost routine practice among certain surgeons of removing a moderately distended gall bladder without even opening it or examining the deep ducts. The reasons given in favor of such a procedure are that it is usually less trouble to the patient and that stones do not re-form after removal of the gall bladder. The argument against it is that in many cases of gallstone disease we cannot be certain of finding all the stones, and there is often more or less cholangitis present, which conditions are best treated by drainage; and drainage is usually safer by cholecystostomy. If we are able to give up drainage in a simple case where the gall bladder is nearly normal, I prefer "ideal" cholecystostomy to cholecystectomy. In regard to the re-formation of stones I have reason to believe that they very rarely recur after cholecystostomy.

I think cholecystectomy should be only done when the common duct is clear and there is little or no cholangitis. It is indicated when the gall bladder is so diseased that its normal condition is not likely to be restored, or when there is an irremediable obstruction of the cystic duct. In acute phlegmon or gangrene of the gall bladder it is usually safer to do a preliminary cholecystostomy, packing gauze around the sloughing gall bladder, and later when the acute process has subsided a cholecystectomy. All the cases I have managed in this way have recovered.

Dr. H. H. A. Beach: Gall bladders demanding surgical treatment are in a large proportion infected. The degree of virulence and extent of infection in and beyond the gall bladder varies, whether the infection proceeds from the liver or ascends from the intestine. The certainty of completely removing all infection by cholecystectomy must be conceded, if the patient is to lose so valuable an outlet for drainage as the intubed gall bladder. The damage that may be done through rousing into activity an infected territory by an operation without providing adequate drainage is incalculable,

even if the hepatic and common ducts have already been distended by the passage of the stones.

The risk of cholecystectomy is the uncertainty of completely removing infection by the operation. Its great advantage to the patient is in lessening the liability to cancer by the excision of tissues that have been the seat of chronic inflammation. A second operation after cholecystostomy has been necessary in three of my cases, on account of pain or pain associated with jaundice. The first operations had been performed by surgeons of large experience. In one instance drainage had been maintained for five months. I have never seen but one permanent biliary fistula from a drained gall bladder. In that instance the common duct was completely shut off from the intestine by a large mass of adhesions and the patient refused a cholecystenterostomy.

Recent Literature.

Diseases and Injuries of the Eye, with their Medical and Surgical Treatment. By GEORGE LAWSON, F.R.C.S. (Eng.), Consulting Surgeon to the Royal London Ophthalmic Hospital, etc. Sixth edition with 249 illustrations. Revised and in a great measure rewritten by ARNOLD LAWSON, F.R.C.S. (Eng.), Assistant Surgeon to the Royal London Ophthalmic Hospital, etc. pp. 587. London: Smith, Elder & Co. 1903.

As the last edition of this work was published in 1885, it is obvious upon reading its pages that the new edition has, as its title page says, "been largely rewritten."

It is now a satisfactory texbook of the present period, although in some instances it has not been quite brought to date, according to American standards. The description of the technique of ophthalmic operations is by far the best part of the book, and is superior to that in any general textbook on the eye that has been recently published. The print and paper of the book are good. The index, which is unusually full, occupies forty-six pages, which makes it particularly valuable as a handy reference book.

Diseases of the Stomach. A Textbook for Practitioners and Students. By MAX EINHORN, M.D., Professor in Clinical Medicine at the New York Post-Graduate Medical School and Hospital, Visiting Physician to the German Dispensary. Third revised edition. New York: William Wood & Co. 1903.

The ingenious inventor of many of our modern gastric instruments stamps his personality very strongly upon this book. Apart from the sections devoted to descriptions of the author's apparatus, the volume on the whole is concise and practical. We regret the introduction by the author of so many new terms in his descriptions of diseases of the stomach, because they tend to create the feeling among general practitioners that the study and treatment of gastric affections is far more difficult than is really the case.

Textbook of Diseases of the Eye, for Students and Practitioners of Medicine. By HOWARD F. HANSELL, A.M., M.D., Clinical Professor of Ophthalmology, Jefferson Medical College, etc., and WILLIAM F. SWEET, M.D., Demonstrator of Ophthalmology, Jefferson Medical College, etc., with chapters by CHRISTIAN R. HOLMES, M.D., CASEY A. WOOD, M.D., D.C.L., and WENDELL REBER, M.D. With 256 illustrations, including colored plates. pp. 532. Philadelphia: P. Blakiston's Son & Co. 1903.

This textbook is one of the most satisfactory put forth in recent years. The text is concise, clear and judicial. Old and disused forms of treatment have been entirely omitted; modern methods of diagnosis and treatment have been emphasized and given first place. New methods which have not yet established themselves have been treated justly, but their tentative positions duly emphasized. The illustrations are good and, with few exceptions, new. The type is clear and the page of convenient size. The index is full and accurate.

The Purin Bodies of Food Stuffs; and the Rôle of Uric Acid in Health and Disease. By I. WALKER HALL, M.D., Assistant Lecturer and Demonstrator in Pathology, the Owens College; formerly Senior Demonstrator in Physiology at the Owens College, Victoria University of Manchester; Honorable Pathologist to the Salford Royal Hospital. Second edition (revised). London, W. C., and Manchester: Sherratt & Hughes. 1903.

This book consists chiefly of an account of the author's own work. In it he gives a series of analyses of the various food stuffs for purin bodies, which is more complete than has heretofore been published. The presence of purin bodies was demonstrated in beers and ales and their absence shown in wines, which accounts for the increased excretion of uric acid after the former. It is noteworthy that purin bodies do not alter the blood pressure in rabbits, because this tends to show that one of the many unproved assumptions of Haig is wrong. Haig attributed headache, migraine and many other diseases to the presence of purin bodies in the blood, whereby, as he says, the blood pressure is raised. The work of Burian and Schur on the quantitative effect of purin bodies of the food on those of the urine is confirmed. The metabolisms of purin bodies in health is considered as well as the effect of drugs on the uric acid in the urine in health and disease. Hall's critical study of the methods employed for the determination of purin bodies is valuable.

THE BOSTON

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INTERSCHOLASTIC SPORTS.

INJURIES and accidents due to *college* sports have been for many years a favorite theme for the public press. The number and seriousness of such injuries have usually been much exaggerated, though of course there has always been a certain basis of fact for such statements. During the past decade, however, *interscholastic* sports have come into existence and have developed with marvelous rapidity. In these school sports there are real and potent possibilities of danger which are none the less important because they have largely escaped recognition. To these dangers it is high time to call attention and to suggest measures which shall diminish and, if possible, eliminate them.

It may be taken for granted that healthy boys will play games and follow sports, some of which will be rough, some dangerous and some neither rough nor dangerous, requiring skill and dexterity, rather than strength and courage. It would be most unfortunate, even if it were possible, to eliminate the rougher and in certain respects the more dangerous forms of amusements from the boy's life. We can, however, protect him from unnecessary and unjustifiable perils, and we may also exercise a considerable control in the choice of sports and in the manner of their practice. It certainly is no longer justifiable to allow interschool athletics to continue with the lack of supervision which has characterized them in the past.

These school sports have several elements of danger, and it may be said at the outset that the least of these are the bruises, sprains or even fractures which result from such games as football and basket ball. Such injuries are bound to come to active boys, and are of comparatively slight importance. The serious dangers are those of the heart and circulation, the general nutrition and probably, also, the nervous system. The factors which tend to develop and exaggerate these dangers are also numerous. They consist, first, of the unbounded and unquenchable enthusiasm by which the school sports are characterized; second, the immature age and the undeveloped physical condition of the contestants, who range from fourteen to eighteen years; third, the almost complete absence of medical supervision; fourth, the presence of either professional, or very young graduate, coaches, both of whom overlook the fact that their charges are young boys and not young men; fifth, the almost complete absence of age classification, that is, boys of fourteen years may be pitted against others of eighteen; sixth, the definite tendency of a large majority to contest in two, three or even four branches of sports, which follow one another chronologically and with almost no intervening interval of rest.

The writer would submit the following opinions, which probably will not be criticised as being radical or extreme: Cardiac hypertrophy of a degree characterized by an apex beat in the sixth space, an inch outside the mammary line, is not a desirable thing in boys not yet old enough to enter college; collapse, accompanied with unconsciousness, and weakness or nervousness lasting several hours, coming at the finish of the relay race or a 440 yard trial, is likewise an undesirable condition in boys; insomnia, inability to study and continued loss of weight, in the absence of organic disease, are also unpleasant symptoms; yet each of these has more than once been found in the course of a not very extensive experience of examining school boy athletes. These conditions are not necessarily of a merely temporary character, for some of them have been under observation for from one to three years and have improved but little.

The sports in which danger most easily develops are football, basket ball, rowing and the track events of the mile run, the half-mile run and the relay race. Baseball, with the exception of the pitcher's position, is not very exhausting, and the short sprints, the hurdles, the jumps, the field events of the hammer and shot and the pole vault are not of a definitely continued exhausting character. Hare and hounds, or cross country running, is on the border line.

The following precautions suggest themselves: A preliminary physical examination, in which not only the heart, but the general condition, the growth and previous health should be considered; second, an increase of class competition in the same school and a diminution of interschool contests; third, shorter hours of organized practice and the establishment of a rule that none but the most physically competent be allowed to represent the school in more than one branch of sport, and that no one represent it in more than two branches; and, finally, a closer and more reasonable interest by the parents in the boy's physical exercise.

The interscholastic rowing which takes place in the spring on the Charles River, under the auspices of the Boston Athletic Association, is free from many of the objections described above; and the interest which it excites in the contestants, has not been diminished by the physical examination and its resultant exclusion of an occasional boy, or by the careful and limited methods of practice.

This article is not intended to suggest in any way a movement to diminish the amount or the number of the schoolboy sports. The writer is an ardent supporter of them in almost every form. In spite of press notoriety and the disadvantages above discussed, such sports are too valuable to be curtailed. They should, however, be supervised, so that their greatest good may be obtained and their obvious dangers, so far as may be, eliminated. This can be easily accomplished by making the sports a part of each school's curriculum, and by having one or more of the masters in close touch with the various teams.

THE REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS.

THE thirty-fourth annual report of the board for the year ending Sept. 30, 1902, presents 649 pages of the high standard of excellence that we expect from year to year.

The death rates for the year and for the previous year, 16.17 and 15.82 per 1,000 living, are the lowest ever recorded in the state, and, in the absence of statistics as to the corresponding birth rates, are explained by the decreased death rate from infectious diseases, including pneumonia and tuberculosis, which destroy mainly the young and middle-aged. From diseases of the heart, brain and kidneys and from cancer the mortality is increased of late years, being in great part of older people who have passed the useful period of life. From these facts the board makes most interesting comparisons of the death rates of cities, which, although largely influenced by birth rates, depend upon the comparative preponderance of the young or the old in their communities.

The reduction of the death rate from "consumption" from 4.27 in 1853 to 1.59 per 1,000 in 1902, even if in part due to improved registration and diagnosis, means enormously improved sanitation; and the very low typhoid rate, 0.183 per 1,000, has the same significance.

The sanitary legislation for the winter of 1902-1903 records material advances in requiring from the towns monthly instead of yearly reports of vital statistics, thus securing much greater accuracy — relative to the destruction by boards of health of infected material; requiring an investigation and report on garbage and refuse dumped into sea or tide water; in regard to the sale of renovated butter; on separate systems of drainage, inspection of food and drug laws; relative to production and distribution of antitoxin and vaccine lymph.

A new office of the board has been created to collect information with regard to matters of public health, to investigate epidemics and high death rates and to bring the board into closer relations with local boards. Dr. F. L. Morse has filled the position to the great advantage of sanitation.

As usual, the greater part of the report (450 pages) is given to the discussion of the large questions affecting water, water supplies, sewerage and disposal of sewage and refuse, and to the advice given in individual cases by the board to cities and towns and corporations on these vital questions. On these matters the reports of the board have become the first authority both in this country and in Europe, and are of the utmost practical value.

There were examined during the year, by the board's officers, 6,256 samples of milk, 3,090 of other food than milk and 1,124 of drugs — in all 10,470, of which 2,989, or 28.1%, were found not to conform to the legal standard; and there were 76 prosecutions with 74 convictions. A list of 61 tonics and bitters is given, in which from 6 to 47.5% of alcohol was found.

In the eight years of that work, the board has manufactured and distributed 181,174 bottles of diphtheria antitoxin. Their records show a fatality of only 6.7% of cases treated during the first two days of the disease, 9 for the third

day, 12.9 for the fourth, 15.9 for the fifth and 17.6 for the sixth and later.

There were 928 specimens of sputum and other material examined during the year for the bacilli of tuberculosis; 217 of blood, for typhoid fever, of which 65 were positive; and 61 for malaria, in 17% of which the malaria parasite was found.

The statistical summary of disease and mortality, the usual comments on the health of towns and an admirable index complete the report.

The confidence of the community in the board and its high valuation of the work done are indicated by the generous appropriations of the legislature, for the year 1902, of $23,000 for general expenses of the board; of $11,500 for inspection of food and drugs; of $34,000 for the protection of the purity of inland waters; and of $2,500 for the examination of sewer outlets.

ANOTHER ORGANISM IN CARCINOMA.

IN a recent number of the *British Medical Journal* Mr. Keith W. Monsarrat, surgeon of the Northern Hospital at Liverpool, describes the morphology of an organism which he has found in carcinoma of the breast. This organism was described by him in 1899. Since that time researches have been continued with special reference to breast carcinoma, and out of the material which has been accumulated in that time he has been able to construct the life history of the previously described organism, and to adduce evidence which he regards of importance relative to its pathological relationship to the disease. Special care was taken in the removal and preparation of the material, and examinations were made at early periods after removal. From twelve specimens he was able to isolate the organism in seven. From observations made on this material, he reaches the following conclusions:

(1) From a considerable proportion (58.3%) of specimens of carcinoma mammæ, an organism presenting characteristic features was isolated.

(2) This organism presents a life-history in which two cycles were traced — the one a vegetative budding cycle, the other a sporulating cycle.

(3) The organism when injected into animals is capable of infecting and inhabiting endothelial and epithelial cells.

(4) The organism initiates in endothelium and epithelium a process of proliferation as a result of which masses of new-formed tissue are built up which consist of a parenchyma and a stroma, and grow and extend actively from their centers of origin.

(5) This new cell-mass formation may be associated with growth of a similar character in neighboring glands, and some evidence was also provided that visceral metastasis occurs.

(6) Intracellular bodies are demonstrable in carcinomata mammæ, which present the same features as the intracellular parasites of the experimentally produced nodules.

(7) The evidence derived from these researches points to the conclusion that the organism described is an etiological factor in the morbid process known as carcinoma mammæ.

We have no means of estimating the value of these observations. We quote them simply as another possible addition to our knowledge of the subject of etiology of cancer. It has apparently been easy to find various organisms in cancer nodules, and to trace certain changes in form. The all-important question of etiological significance, however, must remain unanswered until absolutely convincing experiments substantiate the findings of the microscope. In spite of vigorous and varied investigations this has not yet been forthcoming.

TESTING OF CLINICAL THERMOMETERS.

BY act of Congress in 1901 a Bureau of Standards was authorized, which among other duties was called upon to test clinical thermometers used in medicine. In order to approach the work with accuracy it was necessary to make a preliminary study of the magnitude and character of the defects in ordinary types of thermometers. To this end large numbers were studied relative to magnitude of errors, destructibility of index, time of action, effect of aging, nature of the glass, etc. It was forthwith established that there was a great lack of uniformity in standard among thermometers commonly used in this country. In general it was shown that the scale of thermometers was ordinarily about .2° F. too high, and a further study of the standards used by manufacturers of thermometers led to a verification of the conclusions previously reached. The manufacturers coöperated willingly in the work undertaken, with a result that the degree of error is now very much less, and a "uniform scale of thermometers" has been established.

Owing to the fact that manufacturers have desired to submit thermometers in large numbers for certification, rapid and accurate methods of testing have been devised. First, defects of construction, defective glass, air bubbles in the bulb, destructibility of index and certain other

matters are investigated, and if the thermometer is shown to be defective in any of these respects, it is refused certification. If the error in registration exceeds .3° F., such a thermometer is likewise refused. An important matter also, which is perhaps not sufficiently recognized, is the change which occurs with time. The greater part of such change takes place the first six months after the making of the thermometer, and the element of chief importance in this change is the chemical composition of the glass. If glass of recognized quality is used, the possibility of changes after six months may, from a practical point of view, be neglected.

The importance of this work needs only to be mentioned to be recognized. It is eminently desirable that an instrument so commonly used, and upon which so much often depends in the determination of the course of disease, should be as accurate as it is possible to make it. The work of the government in this respect, both directly and indirectly, has already proved of the greatest value.

MEDICAL NOTES.

MERGING OF TWO MEDICAL JOURNALS. — It is announced by the publishers of the *International Medical Magazine* and the *Archives of Pediatrics* that these two journals will be merged into a single periodical, retaining the title *Archives of Pediatrics*.

QUADRENNIAL CONGRESS OF POLISH PHYSICIANS AND SCIENTISTS. — The tenth quadrennial congress of the Polish physicians and scientists will be held this year in Lemberg, Austria, July 20–24. Prof. E. Machek is the Chairman of the Committee of Arrangements and Prof. W. Sieradzki, Secretary. Dr. Francis E. Fronczak of Buffalo, N. Y., is the representative of the committee for the United States.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Feb. 10, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 49, scarlatina 38, typhoid fever 6, measles 149, smallpox 0.

A CENTENARIAN. — Mrs. Lavinia H. Crosby of Arlington, Mass., died Feb. 1, at the reputed age of one hundred and one years. She was born in Brewster, Cape Cod, and had lived for sixty-seven years in the house in which she died.

THE NEWTON, MASS., HOSPITAL. — At the annual meeting of the corporation of the Newton Hospital action was taken which practically removes from office the superintendent of the institution. The house officer will hereafter in a measure fill this vacancy. During the past year upwards of 800 patients were treated with some increase in expense over the year 1902. A new ward for maternity cases is needed.

FREE DENTISTRY. — A committee appointed last year by the trustees of Tufts College to visit the Tufts Dental School report, as a result of their investigation, that free dentistry is much needed in the city. The committee urges that approximately $4,000 a year would permit the free treatment of 8,000 more patients than are at present treated, and that such free treatment would be of benefit not only to a large number of individuals in the community, but also to dental students in the prosecution of their studies.

CRIPPLED AND DEFORMED CHILDREN IN MASSACHUSETTS. — According to a recent report of the state Board of Charity, inquiring into the number of crippled and deformed children in this state, who because of their deformity are unable to attend the public schools, it appears that 251 towns had no children of this class, that 65 towns reported 208 and that 36 made no reply to the inquiry. It is estimated that if a more rigid investigation were made, the entire number of children would amount to upwards of 250.

NEW YORK.

AT the annual meeting of the New York Graduates' Society of McGill University, held Jan. 27, Dr. J. A. Meek was elected President and Drs. H. N. Vineberg and William Ferguson respectively first and second Vice-Presidents.

BEQUESTS. — Among the bequests to charitable and religious institutions, aggregating $80,000, in the will of the late Mrs. Elizabeth W. Aldrich of New York, are the following: $10,000 each to St. Luke's Hospital and the Home for Incurables, and $2,500 to St. Mary's Free Hospital for Children.

DECREASE IN STREET ACCIDENTS. — The president of the Board of Police reports a gratifying decrease in the number of street accidents during the month, as compared with January, 1903, the figures being 159 and 213 respectively. There were 19 persons struck by cars, as against 39 in January of last year.

A Gift for Newark City Hospital. — The mayor of Newark, N. J., has received for the City Hospital a gift of $24,000, from the estate of Joseph Nichols, who died twenty years ago. Joseph O. Nichols, the cousin of the deceased, was appointed administrator, and after the various bequests in the will had been complied with, $11,000, which remained, was placed in savings institutions, where, with the accumulations by interest, the amount has increased to $24,000.

"Liquid Sunshine." — At the annual dinner on Feb. 5 of the Technology Club, which is composed of New York alumni of the Massachusetts Institute of Technology, "liquid sunshine," prepared under the direction of Dr. William J. Morton, was one of the beverages provided. Each guest had a glass of water containing a small quantity of esculin, and into this he dropped a capsule which had been rendered radio-active by exposure to radium. After drinking the liquid none of the diners appeared to become translucent, but they were assured that their interiors were thoroughly illuminated.

Orthopedic Dispensary and Hospital. — At the annual meeting of the Board of Trustees of the New York Orthopedic Dispensary and Hospital, which was held on Jan. 25, it was announced that Miss Emily A. Watson, one of the supervisory board of the institution, who had previously given $100,000 for the erection of a country branch, has now presented an endowment fund of $250,000 for the maintenance of the same. This new building, which is approaching completion, is a substantial structure three stories in height, located at White Plains, Westchester County, and is surrounded by fifteen acres of land. It is designed as a convalescent hospital and industrial school.

Inspection of Schools. — At a meeting of the Board of Education held Feb. 3, Health Commissioner Darlington recommended the temporary closing of one public school and the disuse of certain class-rooms in two other schools in the Borough of Brooklyn. Dr. Darlington also urged improvement in the sanitary conditions in nine other schools in Brooklyn. These recommendations were based on the results of an investigation made by Dr. Charles F. Roberts, sanitary superintendent of the Health Department. The school, the closing of which was advised, is an old one-story frame structure, which was found to be insufficiently heated, while the arrangement of the class-rooms is bad and the plumbing defective.

Mount Sinai Hospital. — The annual meeting of the directors of the Mount Sinai Hospital, the last at the old buildings, was held on Jan. 24. It was announced that the new hospital, at Fifth and Madison Avenues, between 100 and 101st Streets, will probably be opened the middle of March. On Dec. 1, 1903, the entire subscriptions to the building fund aggregated $1,435,568, of which $152,139 was received during the past year. The following figures show the relative size of the old and new buildings: Total number of beds in the present hospital, 225; total number of beds in the new hospital, 456. Cost of maintenance of the present hospital and dispensary, annually, $144,319; estimated cost of maintenance of the new institution, annually, $250,000.

Hebrew Infant Asylum. — The ninth annual meeting of the Hebrew Infant Asylum was held on Jan. 27, when the annual report showed that during the past year the mortality among the inmates, ranging from newborn infants to children five years old, was less than 2½%, as compared with a general outside rate for children between those ages of 10%. Of the 248 children cared for during the year, only 6 died. The president of the institution announced that toward the fund being raised for the erection of a new building, to accommodate 500 children, $40,000 of the $175,000 required had now been subscribed. The asylum is at present located in the eastern section of the Borough of the Bronx, but it is purposed to have the new building on the western side of the Bronx, and negotiations are now in progress for the purchase of a desirable site.

Clean Bank Notes. — On Jan. 29, in Washington, Dr. Darlington, President of the New York Board of Health, was heard by the Banking and Currency Committee of the House of Representatives on the pending bill providing for the issue of new notes to the end that the paper currency may be maintained in good sanitary condition. He expressed the opinion that a provision for keeping this as clean as possible by constant renewal would be a step in the right direction. He also believed that a plan could be arranged by which the money (coins as well as bills) received by the street car companies, large retail stores, etc., of the principal cities might be sterilized each day or each week. At present, he said, an investigation was being made in the New York Health

Department laboratories, to determine, as far as this was possible, to what extent disease germs are transmitted by means of money.

MORTALITY IN JANUARY. — The Health Department reports show that during the month of January the mortality in the city represented an annual death rate of 21.22, as against 18.53 in December and 19.32 in January, 1903. The corrected death rate, excluding non-residents and infants under one week old, was 20.32. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from diphtheria and croup increased from 47.25 in December to 51 in January; the weekly average from scarlet fever, from 17.75 to 28; from measles, from 9 to 19.25; from influenza, from 8 to 15; from pneumonia, from 186.75 to 226.5; from broncho-pneumonia, from 88.25 to 122.25; from acute bronchitis, from 37.5 to 56; from diarrheal diseases, from 34.5 to 36.25; from diarrhea under two years of age, from 25 to 28; from cancer, from 52.75 to 56.5; from Bright's disease and nephritis, from 114.75 to 137.25; and from organic heart diseases, from 97.5 to 108.25. Among the diseases in which there was a decreased mortality were the following: The weekly average of deaths from whooping-cough declined from 3.75 to 1.5; from typhoid fever, from 13 to 7.5; and from pulmonary tuberculosis, from 162 to 157.75. During the month there were two deaths from smallpox; with the exception of one other, in the early part of December, these are the only deaths reported from this disease for many months.

EXTERMINATION OF MOSQUITOES. — The Park Department, which for some time has been engaged in cleansing the lakes and pools of Central Park, announces that it has got rid of mosquitoes in that resort. Incidentally the investigating committee, consisting of Dr. E. B. Southwick, city entomologist, and Dr. William N. Berkeley, of the Board of Health, has reported that, despite assertions to the contrary made by physicians and others, there never were many mosquitoes of the anopheles variety in the Park.

ST. BARTHOLOMEW'S CLINIC. — The Year Book of St. Bartholomew's parish, just issued, has the added interest of being the last to appear during the remarkable rectorate of Dr. David Greer, who has now been made bishop coadjutor of New York. When Dr. Greer took charge fifteen years ago, there was but one feeble little benevolent society; but the religious and benevolent work of the parish has now developed into enormous proportions, and during the past year, at the St. Bartholomew Clinic, fifty physicians and surgeons have given free service to more than 13,000 patients.

Miscellany.

THE BUMMER AND THE GUMMA.

BY G. L. WALTON, M.D., BOSTON.

THE following jingle has served to fix the pathology of central nervous syphilis in the mind of the writer. It is forwarded in the hope that it may serve the same purpose for others equally dependent on kindergarten methods.

The gay and festive bummer, when he goes upon a bum,
Inaugurates proceedings with a bottle full of rum.
This serves the vessels to dilate, resistance to impair
Of tissues of the cerebrum, and thus prevents repair,
Facilitating movements of that wicked little bug,
Which does not hit you on the head like ordinary thug,
But finds its way, without delay, to regions most remote.
(On this authorities agree, too numerous to quote.)

He first attacks the arteries, upon their inner layer,
And when he's caused an exudate, it's apt to be a stayer;
It blocks the passage of the blood, and favors a thrombosis,
Not subject to relief by en-, or even ex-, osmosis.
The adventitia swells a bit; profuse proliferation
Of cunning little rounded cells increases the stagnation.
A little fibrous tissue, and a cheesy breaking down,
Will serve to make a gumma; — for the man who's seen the town.

Its surface is irregular, the cheesing is in spots,
Surrounded by a granuled mass of microscopic dots.
Sometimes the vessel wall is most as jagged as Formosa;
Pathologists call this effect "arteritis gummatosa."
More commonly this growth is found in membranes of the brain,
Or in the substance of a gyre, or in the pons again,
More rarely in the capsule, but quite often at the crus,
Crossed palsy being thus produced with very little fuss.

Sometimes the process is diffuse; a gummous exudate
Spreads round the vessels of the base, not coming quite so late
As gumma, which you sometimes find twelve years or more delayed
Beyond the time the patient states infection was conveyed.
A year will make a gumma, though, says Strümpell in his treatise,
Three months sufficing to produce effective meningitis.

This plays about the cranial nerves, whose endo-
neurium
Swells up in spots unduly prone to pinch the fibers
some!

A gummatous neuritis is the name they give this
stunt,
Of which the nervous fibrils have, alas, to bear the
brunt.
A serous imbibition forms the next important issue,
Which may produce an atrophy, with cicatricial
tissue.
Gelatinous material in diffusive neoplasm
Is fond, as Oppenheim has said, of squeezing the
chiasm.
So don't forget to take the fields, 'twill help you out a
bit,
In case you lack paralysis, strabismus, or a fit.

These lesions dire, like forest fire, are very hard to
smother,
To-day appearing in one place, to-morrow in another;
That's why the learned Oppenheim and Peterson, also,
Say "Syph of central nervous Syst," and let the old
plan go,
Of "Syph of cord" or "Syph of brain";—the awk-
wardness was great
Of naming from the part worst hit, by gummous
exudate.
(This exudate is rather prone small lesions to produce,
So never look to find that form of *neuritis* called
diffuse.)

Diffuse and circumscribed attack may join in doing
harm,—
There may be palsy of an eye, the face, or leg, or arm;
A gumma, arteritis and neuritis may consort;
So don't be rash in forecasting the pathologist's
report!
When meningitis gets well set, it makes a stiff mem-
brane,
To start which you use iodide again and yet again.
And don't forget the softening, which leaves the brain
forlorn,
In parts from which, through syphilis, the circulation's
gone.

A lobe, or a whole hemisphere, has been known thus
to fall,
Producing hemiplegia; not to mention death at all.
Above all, just remember that the symptoms come and
go,
And change almost from day to day, with gummous
ebb and flow.
Remember that the iodide, in any doubtful case,
May serve at least for rheumatiz, and maybe lead
displace.
Recall G. P., and tabes too, from toxines of the gumma
Which any time may overtake this gay and festive
bummer.

THE MEDICAL EXAMINING BOARD OF SOUTH CAROLINA.

THE medical bill which is now before the legislature of South Carolina, as regards sections which deal with examinations of students by the state board, is drawn entirely from an article entitled, "The True Function of the State Examining Board," prepared and read by Dr. Allard Memminger, four years ago at a meeting of the South Carolina Medical Association and published in this JOURNAL July 26, 1900. Had the ideas contained therein been then adopted it would have probably avoided all the trouble which the exemption clause passed in the students' bill two years ago has caused.

The present bill exempts no one, but provides fully and fairly for the students who graduate at a four-year graded school, and who attain 75% on all of the junior branches. On these they are, by the provisions of this bill, freed from coming before the state board, and these junior branches of the curriculum include general anatomy; physics; chemistry, organic and inorganic; physiology; materia medica and medical botany; bacteriology; histology and pathology.

They thus, after receiving their diplomas, are only examined by the state board on the practical branches of their curriculum, to which they have, of course, devoted all their study during the latter portion of their medical term.

WE must again ask the indulgence of our readers for the delay in the issue of the JOURNAL, which has been caused by a continued strike of printers and pressmen.

Correspondence.

IMPOSTOR.

BOSTON, Feb. 8, 1904.

MR. EDITOR: Some time ago I called attention in the JOURNAL to a man who then gave the name of Dr. —— Allen of New Orleans, who was soliciting money either by gift or loan (?) from the members of our profession, on the pretence that he had been robbed. This man is again among us, and has already called on some of his former dupes. Will you kindly again warn the profession against this *impostor*, who has a public record for fraud, and thus perhaps benefit some of our associates?

Sincerely yours,
ALBERT N. BLODGETT, M.D.

MORPHINE AND MENSTRUATION.

BALTIMORE, MD., Feb. 2, 1904.

MR. EDITOR: Your excellent editorial, "The Menstrual Functions of the Morphine Habitué," in the JOURNAL of Jan. 30, contained statements of conditions too little regarded or understood by the average physician. To those who have an intimate acquaintance with morphine victims the reason is obvious.

I have found many women in social life and the theatrical profession, as well as in the *quatre monde* of Paris and Vienna, who commenced the use of morphine with the sole purpose of preventing pregnancy. Only a short time ago a woman of twenty-eight years of age was sent to me for treatment who was using 40 or 50 gr. of morphine a day. This patient informed me that she had been told by a schoolmate that a grain at bedtime and another one in the morning would prevent pregnancy. Several years ago I learned from women on the Continent that they all considered morphine a certain preventive, and, as can be readily understood, when used for a few weeks this remedy is not apt to be neglected.

Truly yours,
WILLIAM LEE HOWARD, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 30, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,549	486	19.62	26.20	3.42	2.00	.45
Chicago . . .	2,021,086	549	160	18.21	22.03	1.27	2.55	.91
Philadelphia	1,407,868	562	159	25.62	23.30	1.95	3.38	1.78
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	235	55	19.15	17.87	.85	1.27	2.12
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	409,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	127	—	25.98	22.83	1.57	2.36	10.23
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,960	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	95	22	22.09	25.25	2.10	—	—
Boston . . .	617,950	226	65	23.00	19.46	1.33	1.33	1.33
Worcester . .	136,925	33	9	27.27	12.12	3.03	3.03	—
Fall River . .	119,349	45	23	11.11	26.67	—	2.22	—
Lowell . . .	104,402	31	—	16.13	19.35	3.22	3.22	—
Cambridge .	100,998	33	11	6.06	18.18	—	—	—
Lynn	73,875	11	4	27.27	—	—	—	—
Lawrence . .	72,348	20	3	10.00	20.00	—	—	—
Springfield .	72,020	21	1	9.52	9.52	9.52	—	—
Somerville .	70,413	21	10	14.28	19.05	9.52	—	4.76
New Bedford	68,863	32	9	37.27	18.18	—	9.09	—
Holyoke . . .	50,538	15	5	6.67	20.00	—	—	6.67
Brockton . .	46,601	8	0	12.50	—	—	—	—
Newton . . .	39,310	11	2	—	18.18	—	—	—
Haverhill . .	39,061	10	1	10.00	—	—	—	—
Malden . . .	37,205	11	3	—	18.18	—	—	—
Salem	37,188	21	6	4.76	14.28	4.76	—	—
Chelsea . . .	36,499	17	4	—	23.41	—	—	—
Fitchburg . .	36,335	6	1	—	16.67	—	—	—
Taunton . . .	34,577	12	5	16.67	8.33	—	—	—
Everett . . .	30,209	6	2	—	—	—	—	—
North Adams	22,201	5	1	—	—	—	—	—
Quincy . . .	26,798	8	—	12.50	25.00	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	4	1	25.00	25.00	—	—	—
Brookline . .	23,576	5	—	20.00	20.00	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,936	7	2	14.30	—	—	—	—
Chicopee . .	21,692	7	3	—	14.30	—	—	—
Northampton	20,314	7	2	—	—	—	—	—
Beverly . . .	15,807	6	—	16.67	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	1	1	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	5	2	20.00	40.00	—	—	—
Newburyport	14,478	4	0	25.00	—	—	—	—
Woburn . . .	14,315	3	0	—	33.33	—	—	—
Melrose . . .	13,819	1	—	100.00	—	—	—	—
Westfield . .	13,809	2	1	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	2	33.33	—	—	—	—
Revere . . .	13,609	2	—	—	50.00	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,496	2	—	—	—	—	—	—
Gardner . . .	12,324	1	—	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	2	—	—	—	—	—	—
Weymouth . .	11,350	2	—	50.00	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,774; under five years of age, 1,061; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 752, acute lung diseases 865, consumption 375, scarlet fever 49, whooping cough 9, cerebrospinal meningitis 14, smallpox 18, erysipelas 18, puerperal fever 9, measles 35, typhoid fever 45, diarrheal diseases 80, diphtheria and croup 87.

From whooping cough, New York 1, Philadelphia 3, Baltimore 1, Pittsburg 2, Boston 2. From smallpox, Chicago 1, Philadelphia 17. From cerebrospinal meningitis, New York 6, Baltimore 1, Providence 1, Boston 2, Worcester 4. From erysipelas, New York 5, Chicago 4, Philadelpha 3, Pittsburg 1, Providence 1, Boston 2, Taunton 1, Marlborough 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending Jan. 16, the death-rate was 19.0. Deaths reported, 5,557; acute diseases of the respiratory organs (London) 217, whooping cough 131, diphtheria 51, measles 136, smallpox 2, scarlet fever 44.

The death-rate ranged from 8.5 in Coventry, to 38.2 in Wigan; London 18.8, West Ham 19.9, Brighton 15.3, Southampton 20.4, Plymouth 22.9, Bristol 16.6, Birmingham 21.7, Leicester 15.1, Nottingham 17.8, Liverpool 23.1, Bolton 21.1, Manchester 18.9, Salford 20.7, Bradford 20.7, Leeds 21.4, Hull 15.2, Cardiff 18.0, Rhondda 22.2, Marthyr Tydfil 33.0, Barrow-in-Furnace 19.2, Preston 29.0.

METEOROLOGICAL RECORD.

For the week ending Jan. 30, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 24	29.94	32	41	24	87	54	70	N W	W	4	12	F.	C.	0
M. 25	30.39	18	24	12	52	48	50	S W	W	14	10	C.	C.	0
T. 26	30.19	24	36	13	33	100	68	N	E	6	24	F.	N.	.26
W. 27	30.12	20	28	12	57	52	54	W	W	18	12	C.	C.	.47
T. 28	30.54	15	23	7	67	58	62	W	S W	7	6	C.	O.	0
F. 29	30.20	20	24	17	97	93	95	N	N	14	18	N.	N.	.06
S. 30	30.18	22	28	16	79	87	83	N	S	10	10	C.	C.	.05
☞	30.22		29	14			69							.84

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

DR. JOSEPH G. ROONEY of West Hoboken, N. J., died on Feb. 4 in St. Mary's Hospital, Hoboken. His death was the result of exposure in intensely cold weather on the night of Jan. 18, when he nobly attended a number of firemen who had been injured at a fire in Jersey City Heights. His hands were badly frostbitten, and subsequently gangrene set in, the progress of which it was found impossible to stop. Dr. Rooney was a member of an old West New York family, and was formerly town physician of that place.

JOSEPH B. ROE, M.D., of Woodbury, N. J., died on Feb. 5, at the age of sixty-eight years. During the Civil War he served as a surgeon in the army, and from 1888 to 1890 was a member of the New Jersey State senate. During his term of service in the legislature he was a member of the special committee appointed by the State senate to inquire into the Hudson County ballot box frauds, and was instrumental in producing before the committee the testimony upon which sixty-four of the election officers were afterwards sent to State prison.

SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The regular meeting of the New England Hospital Medical Society will be held at Hotel Nottingham Feb. 18, 1904, at 7.30 P.M. Scientific program under charge Section on Nose and Throat. Dr. Alice G. Bryant, Chairman. Paper by Dr. Emma E. Musson of Philadelphia, entitled "Some Recent Experiences with Acute Nasal Sinusitis."

MARION NUTE, M.D., Secretary *pro tem.*
32 Mill St., Dorchester.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall, Medical Library, on Monday, Feb. 15, at 8.15 o'clock. Dr. H. C. Ernst will speak on the "Means by Which Tuberculosis Spreads." "Should the Medical Profession of Boston Urge the Establishment of a Municipal Hospital for Tuberculous Patients?" Dr. Knight, Dr. Otis, Dr. Howard, Dr. Rowe, Dr. Bowditch, Dr. Minot, Dr. Stone, Dr. Cox, Dr. Markley, Dr. Allen and others will take part in the discussion.

CHARLES M. GREEN, M.D., President.
ARTHUR K. STONE, M.D., Secretary.
All interested are invited to attend.

LECTURES ON TUBERCULOSIS: THE HENRY PHIPPS INSTITUTE.—The next lecture in the international course on tuberculosis, under the auspices of The Henry Phipps Institute, will be given by Dr. Herman M. Biggs, Chief of the Department of Health in New York, on Monday evening, Feb. 15, the subject being "The Administrative Control of Tuberculosis." The profession in general is cordially invited to attend this lecture.

APPOINTMENTS TO THE STAFF OF THE BOSTON DISPENSARY.

Physicians, Dr. F. W. Stuart, Dr. Percy Musgrave. Gynecologists: Surgeon, Dr. Edgar Garceau; Assistant Surgeons, Dr. F. X. Crawford, Dr. Herbert S. Gay. Throat Department: Surgeon, Dr. H. P. Mosher. Rectal Department: Surgeon, Dr. James H. Grimes. Nervous Department: Assistant Physician, Dr. F. B. Granger. Men's Massage Department: Mr. E. H. Harding.

Original Articles.

SLIPPING OR RECURRENT DISLOCATION OF THE PATELLA. WITH THE REPORT OF ELEVEN CASES.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE above condition is seen almost entirely in girls or women, and is due, in large part, to the fact that the line of pull of the quadriceps extensor muscle is not straight, this feature being increased in its effect by an unnaturally long patella tendon, knock knee or an imperfectly developed articular surface at the end of the femur. Eleven cases of this condition, seven operative with thirteen operations, and four non-operative, have been seen and treated by the writer, and the observations made in connection with the treatment of these cases represents the basis of this paper.

The first feature, or the indirect muscle pull, is in part normal anatomically. The tubercle of the tibia with the attachment of the patella tendon is distinctly to the outside of the central portion of the patella when the knee is extended and the muscles are at rest. As the action of the muscles, together with the joint motion, is studied, it is seen that during flexion the patella is drawn forward over the articular surface between the condyles of the femur and inclines slightly but distinctly to the outside of the median line. As extension takes place the patella ascends, inclining slightly toward the inner side until, when extension is complete, the line formed by the origin of the rectus femoris, the center of the patella, and the tubercle of the tibia makes an obtuse angle (Fig. 1). As the muscle contracts the natural tendency is to straighten this line, with the necessary result that the patella is drawn outward, representing, as it does, the only movable point in the line. This can easily be demonstrated in any normal joint if the knee be fully extended and the quadriceps muscle be alternately contracted and relaxed. The lateral movement of the patella is distinct, the limit outwardly being controlled in part by the ligaments, but more particularly by the outer ridge of the trochlear surface of the femur, which is distinctly higher in its upper and anterior surface than the same ridge at the inner side (Fig. 2). Against this the patella impinges, and displacement further is impossible as long as all the parts are normal.



FIG. 1 (Gray).



FIG. 2 (Gray).

If for any reason the line of pull becomes less direct or the articular ridge less perfectly formed; if the capsule be weakened by the distention following some acute injury; if the patella tendon be abnormally long so that the patella is drawn above the outer edge of the trochlear surface of the femur; or if the joint can be hyperextended so that during the muscular pull the patella is lifted away from the femur — in any one of these conditions the stability of the joint, so far as the patella is concerned, must be materially lessened.

The displacement of the patella, which results from such a mechanical condition, may occur frequently with simple motion or muscular contraction, or may develop only when attended with the application of considerable force and when combined with some lateral strain, the ease or difficulty of the displacement depending, of course, upon the degree to which the normal condition has been modified. In the extreme conditions the displacement may become permanent, in which case the inner portion of the capsule becomes permanently stretched while the outer portion shortens. In this condition the patella rests upon the outer surface of the outer condyle of the femur, and complete extension,

which depends upon the pull of the quadriceps extensor, acting through the patella over the lower and anterior surface of the femur, is impossible. If this extreme or permanent condition occur in childhood or before the bone growth is complete, the condyles of the femur conform in their development to the range of motion, so that ultimately complete extension of the joint is impossible, the limitation not being due to ligamentous or tendonous contracture, but to a change in the articular planes. These extreme features were present in Case I.

It is also true that if the displacement persist for any length of time in the growing child a twist in the upper end of the tibia results, so that even though the patella be replaced the angle in the pull of the muscle is so much increased that displacement occurs as soon as the muscle contracts.

From my observations in this limited number of cases it seems to be true that if the patella has slipped out several times without special violence it is an evidence of joint instability, due to one of the above-mentioned conditions; and while the slipping may be controlled by simple measures, the weakness usually remains and the joint is unable to stand the strain of normal use. For this reason, although bandaging, braces for the knees, the correction of flat or pronated feet, should always be tried in the early stages of the trouble before the slipping has become frequent, comparatively little is to be expected in the way of permanency of relief from such measures, if the slipping has recurred several times, unless the patient be very young.

The chief point in the treatment naturally consists in the correction of the angle in the line of muscle pull so far as it is possible. If knock knee be present, the lateral motion of the patella during use will naturally be increased. If the knock knee is due simply to the loose internal lateral ligaments, it is conceivable that by thoroughly correcting this the lateral movement of the patella may be lessened and the slipping or dislocation cease. I have not been able to accomplish this in any one of the cases here reported, although one seemed favorable as to age; but to expect improvement is reasonable from the study of the mechanics, if the cases can be seen before bone or other permanent changes have taken place.

If marked knock knee with the usual bone changes be present, this should, of course, be corrected, but as this feature was present in but one of the cases under discussion it is probably not as common as has been supposed.

If the patella tendon be long, so that in complete extension the patella is drawn above the outer ridge on the trochlear surface of the femur, it should naturally be shortened, as unless the normal mechanical relations can be restored the joint must be unstable. To correct this the tendon should be shortened, and in doing this it is better, as it lessens the danger of relapse, at the same time to change the attachment of a portion of the tendon, thus making the line of pull more nearly straight. In the one case in which the tendon was simply shortened relapse occurred, entire relief following the second operation, in which the other half of the tendon was transplanted.

If after studying the mechanics of the given joint carefully the relaxed inner half of the capsule is the only defect, this should naturally be tightened. It is my impression, however, that this is almost never the case, and that the relaxed capsule is a result of an abnormal condition rather than the cause, and that if the cause be corrected the relaxation of the capsule will take care of itself. In the three operations performed by me in which only the inner portion of the capsule was tightened all relapsed, while in the cases which have been operated on since and the patella tendon reattached the capsular relaxation has entirely disappeared, although at the time of the operation the capsule itself was entirely ignored.

In the majority of the cases, when carefully studied, it will be seen that the attachment of the patella tendon is distinctly farther to the outside than normal, making less direct the pull of the anterior thigh muscles, and with this the ridge on the outer edge of the articular surface of the femur is less marked than normal.

The treatment which has been most satisfactory in meeting this condition is an operation in which the outer half of the patella tendon is reattached to the tibia, well to the inside of the tubercle. In this way the angle in the muscle pull is lessened or entirely removed, so that the patella is drawn firmly across the articular end of the femur and the presence of the ridge at the outer side is made of less importance. Of the eight operations which have been performed in which this has been the chief feature, in seven no after trouble has resulted, and the stability of the joints has made them equal to normal use. In one in which the tendon had, at the same time, been shortened, the first attachment did not remain firm, so that a second operation was necessary.

The operation as carried out at present consists of a longitudinal incision four or five inches long, extending from just below the tubercle of the tibia upwards. Through this the patella tendon is exposed and split in halves, anteroposteriorly, throughout its entire length. The outer half is then cut from its attachment, passed under the remaining portion and attached to the periosteum together with the expansion of the tendon of the Sartorius muscle at the inner side of the anterior surface of the tibia (Fig. 3). If it is desirable to shorten the patella tendon the attachment can be so made that the patella is drawn down as much as is desirable, but as this means much tension upon the new attachment a hole should be drilled in the bone at the point of attachment, through which the suture is passed which holds the tendon. The carrying of the free portion under the other is of importance, as in this way the patella is tilted, the outer portion being drawn downwards, and

impinges more firmly against the outer ridge of the articular surface of the femur during muscular contraction so that the danger of displacement is materially lessened.

The attachment is made with strong silk, quilted through the tendon; the wound should be tightly closed, and the leg fixed in a plaster of Paris bandage from the ankle to the groin, the contraction of the quadriceps extensor being eliminated as much as possible by applying a tight gauze bandage from the knee to the groin under the plaster. The fixation should be kept up for about six weeks.

In performing the operation the inner half of the tendon, or that most favorably situated for the direct muscular pull, is entirely undisturbed, so that in case the transplanted portion fails to unite function is still possible, and some improvement must still result, as the simple removal of the outer half of the tendon practically moves the existing attachment of the tendon that much farther to the inside.

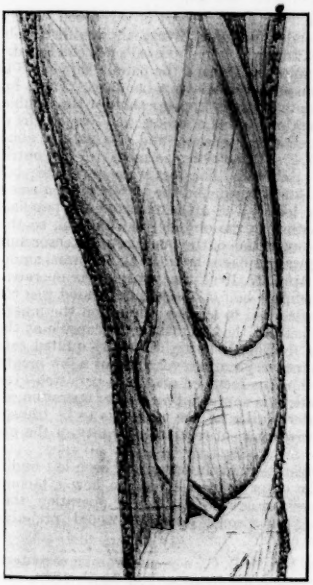


Fig. 3.

In perfecting the operation various measures have been tried. The inner half of the tendon in one case was transplanted with ultimate relapse; the entire tendon was transplanted in one case with a perfect result, but this was not repeated, as the later operation possessed less danger from possible failure of the new attachment to hold; in one case the patella tendons wa shortened with subsequent relapse; and in ona case the entire tubercle of the tibia was transplanted and nailed to the inner side of the tibis with a good functional result, but with a much longer convalescence than is required in the operation described in detail above. The cases in which simply the inner portion of the capsule was shortened all relapsed.

The cases are reported in detail below. In the operated cases, with possibly one exception, a sufficient length of time has elapsed for a thorough test of the joint to have been given.

Case I. This case has been previously reported (Annals of Surgery, January, 1899) and represents a case of dislocation of both patellæ, in which the malposition had become permanent. The patient was a woman thirty years of age, and was first seen in February, 1895. The trouble with the knee began without injury at ten years of age. Treatment was sought because of pain in the back which resulted from the peculiar attitude in standing.

On examination both patellæ were on the outer surface of the outer femoral condyles, and replacement was impossible. The tibia was rotated outward considerably so that the attachment of the patella tendon was much farther to the outside than normal, and complete extension of the knee was impossible, due apparently to the abnormal development of the articular surfaces of the lower end of the femur. On standing, the knees were flexed and braced against each other, increasing considerably the normal lumbar curve, with resulting muscle strain and backache. There was slight knock knee, and the gait on walking was awkward, one leg being thrown around the other. Horizontal extension of the legs was impossible. The correction of the position of the patellæ by any manipulation was impossible, so that the patient entered the Carney Hospital, and in March, 1895, the right knee was operated upon as follows:

Through an eight-inch incision, beginning above the knee on the outside and extending downward across the knee to the inside, the capsule of the joint was exposed. Even with the skin removed the patella could not be brought up into its normal position, and a longitudinal incision three inches long was made through the outer part of the capsule. After this the dislocation could be corrected without difficulty, but because of the change which had taken place in the shape of the ends of the bones, the tubercle of the tibia was so much farther to the outside than normal that, when the joint was flexed, the patella slipped out of place again. In order to obviate this, and to have the attachment of the patella tendon in the proper place, the tendon was cut off and sewed to the periosteum and the expanded tendon of the Sartorius on the inner and anterior surface of the tibia. The loose capsule on the inner side of the joint was next shortened with quilted sutures, and for fear that the strong thigh muscles should tear away the new attachment before it should become firm, about three-fourths of the quadriceps extensor was divided just above the patella. The wound was then tightly closed, the skin being depended upon to close the gap (three-quarters of an inch broad) in the outer part of the joint capsule made necessary to draw the patella forward.

The recovery was uneventful, there was very little pain and practically no elevation of temperature. The wound was healed in one week, and motions, which were not in the least restricted, were allowed at the end of one month. A leather knee splint, to prevent any sudden violence and the possible tearing away of the newly attached tendon, was worn during a part of the time for a few months. As soon as the patient was able to be about, even though one patella

was in place and the action of the knee improved, the difficulty in completely extending the knee remained, so that the lordosis was not lessened. To correct this an osteotomy of the femur above the condyles was performed in both legs and the knees straightened. The convalescence from this operation was uneventful, and eight weeks from the time of its performance the left knee was operated upon to correct the position of the patella. The operation was similar to that which was used in the other joint, except that, instead of cutting off the patella tendon and re-attaching it, the whole tubercle of the tibia was chiselled off and nailed to a depression which was made on the inner side of the bone. The reason for this change in the procedure was that while the other knee had shown no signs of weakness, nevertheless, it was my feeling that a bony attachment would probably be more secure. With this, of course, it was not necessary to cut away so much of the attachment of the quadriceps extensor above the patella.

Instead of the primary union, as was obtained in the other knee, the tendon and the piece of transplanted bone sloughed considerably, so that, instead of healing in one week, about three months were necessary before the wound was entirely closed. During much of this period the patient was able to be about, but the healing was not complete until then. The functional result in this joint is also not as good as in the right, and, while complete extension is possible, there is only about 90% of motion in flexion.

Since the operation there has never been the slightest indication of the old pain in the back, the lordosis has been corrected, the gait is much improved and, except for the limitation in flexion in the left knee, the patient is perfectly well, with the normal function of the joints. On walking or standing the inward rotation of the legs has disappeared, and on sitting complete extension of the leg is easily performed entirely without the twist of the leg that developed with the attempt at such movement before the operation. It is now seven years since the last operation was performed, and during much of that time the patient has been at work in a factory able in every way to meet the demands made upon her.

CASE II. Miss M. L., thirty years of age, was seen in consultation with Dr. Charles P. Putnam, in April, 1897.

Since childhood both knees had slipped on slight provocation, the condition having come on without injury or other known cause. The slipping caused great inconvenience, producing frequent falls, and being followed commonly by joint swelling.

Bandages, massage and appliances had been thoroughly tried and failed. Accordingly both knees were operated upon, and the inner portion of the capsule of the joint was shortened so that when the wound was closed it was impossible to slip the patella out of the trochlear groove. At the time of this operation the importance of attachment of the patella tendon in its relation to the line of pull was not appreciated by me, and as there was no literature upon the subject, this feature was entirely ignored.

After the operation the wounds were tightly closed and the period of healing was uneventful. Very soon, however, after the patient began to go about the capsule stretched again so that the dislocation recurred, there being no permanent improvement from the operation.

Further operation was refused by the patient.

CASE III. Mary F., seventeen years of age, was seen May 29, 1897, because of slipping of the left patella, which had begun five or six years before without known injury, and had slipped at infrequent intervals ever since.

At the time of the first examination the chief feature to attract attention was the abnormal length of the patella tendon. The attachment of the tendon in this instance was not noted and the first operation consisted of shortening the tendon about three-fourths of an inch and quilting the inner side of the capsule of the joint. The healing after this operation was uneventful and the immediate effect was satisfactory, but later on, however, the slipping or dislocation recurred and became as troublesome as before.

As the essential principle of the treatment had been by this time recognized, a second operation was performed Jan. 18, 1901, and the outer half of the tendon was cut away, passed under the undivided portion and attached well to the inside of the tibial tubercle, as has been described above.

The recovery was uneventful, and no further trouble has resulted. The knee is used freely and is apparently perfectly strong.

CASE IV. E. R., a girl of seventeen years of age, came under treatment five years ago for trouble with the left knee which had existed since childhood. Under the simplest movement the patella slipped to the outside, unless controlled by a bandage. There had been no definite injury or known cause for the trouble. The examination showed a strong, well-formed girl with the left knee much relaxed and the patella abnormally movable, so that displacement to the outside was easily produced. The feet were quite flat, but there was no knock knee, and the patella tendon was not unusually long. The attachment of the patella tendon was farther to the outside than normal, so that with every contraction of the quadriceps extensor muscle the patella was displaced laterally an abnormal amount.

On April 27, 1889, the patient was operated upon, and the inner half of the patella tendon was cut away and reattached to the periosteum on the inner side of the tibia. At the same time the capsule at the inner side of the joint was tightened by quilted sutures.

The recovery was uneventful, but a few months later the symptoms recurred and have persisted ever since. The patient is now awaiting further operation, in which the outer portion of the tendon is to be transplanted, thus correcting entirely the obliquity of the muscular pull.

In this case had the inner half been left undisturbed and the outer portion given the new attachment, as has been the case with the later operation, the necessity of the second operation would probably have been avoided.

CASE V. M. C. C., a young woman seventeen years of age, came for treatment in April, 1899, complaining of trouble with both knees. When nine years of age she was thrown down and one patella slipped out. Soon after this the other slipped, and ever since at intervals varying from a few weeks to a year the slipping has been repeated, sometimes one and sometimes the other giving out. After each slipping the joint has swelled, necessitating quiet and bandaging for a few weeks. The slipping occurred sometimes with violent use and sometimes upon slight movement.

The examination showed a strong, well-formed girl, the only apparent defect being the relaxation and weakness of both knees. The patellæ could easily be displaced laterally, and their lateral movement to the outside, during the contraction of the quadriceps muscle, was quite noticeable. There was no knock knee, and but slight pronation of the feet.

Previous to consulting me the patient had had for over a year systematic massage with some mechanical

treatment, without improvement, so that after first correcting the pronation of the feet, still without improvement, an operation was performed, in which the outer half of the patella tendon was transplanted to the inner side of the tibia, as has been described above. Both knees were operated upon at the same time. The recovery was uneventful. At the end of four weeks the plaster bandages were removed and movement allowed in bed. Two weeks later the patient was allowed up, the only protection being a light flannel bandage, which was worn during the daytime for a few months.

As to the ultimate result, in the four years which have elapsed since the operation, the patient has been active in sports and games, with absolutely no weakness or symptoms referable to the knees, except that once in a romp she was thrown, wrenching one knee, causing a few days of discomfort. Even in this violence the stability of the joint was not disturbed.

It is an interesting fact that in this case, while the capsule had been much relaxed, and even though no attempt was made to tighten it at the time of the operation, the normal tonicity of the structures returned with the restoration of the normal mechanical function and the relief of the lateral strain.

Case VI. M. C., a young woman twenty-three years of age, was seen in 1895, and treated for marked flat foot. For several years before this the knees had been quite troublesome, slipping occasionally, sometimes one knee and sometimes the other. No definite cause could be assigned for the trouble.

The examination showed a strong, well-developed woman, with quite marked flat foot and with relaxed knee joints, but with no knock knee. The movement of the patella to the outside during the contraction of the anterior thigh muscles was quite apparent. Because of the definite character of the flat foot it was thought wise to correct this first, hoping that by lessening the strain upon the knees the weakness and slipping might be modified. This, however, did not result, but instead the weakness and slipping became more marked, so that while at first considerable violence was necessary in order to develop the trouble, gradually the displacement became more and more easy, until it was apt to follow any slight simple movement, naturally causing great limitation of activities.

In May, 1901, an operation was performed, and the outer half of the patella tendon was transplanted. Both knees were operated upon at the same time, and after six weeks in bed regular use began. Since then the patient has lived a thoroughly active life without the slightest evidence of weakness.

Case VII. C. G., a young girl seventeen years of age, was seen in June last at the Vincent Hospital, in consultation with Dr. Mary P. Hurd.

The history was that eight months before the left knee was sprained, at which time the patella was probably dislocated. Without special violence the patella distinctly slipped out two months ago, and since that time it has slipped frequently and with but slight movement. On even turning over in bed the dislocation often occurred.

The girl was of good height and of fairly good physical development. The left knee was much relaxed with but little increase in the synovial fluid, and the lateral movement of the patella was so free that with but very little force it could be entirely displaced. The patella tendon was fully a half inch longer than normal, and the articular ridge on the outer edge of the trochlear surface of the femur was much less distinct than usual. The angle in the line of pull of the quadriceps extensor muscle was quite distinct. There was slight knock knee, and the pronation of the feet was marked.

For treatment the pronation of the feet was corrected and the knee strapped with adhesive plaster, and over this a flannel bandage applied, but in spite of this the slipping continued, and, as only when the knee was fixed in a plaster of Paris bandage was the slipping controlled, an operation was advised.

In the early part of July the outer half of the patella tendon was attached to the inner side of the tibia, the only difference from the operation performed in the last two cases being that, as the patella tendon was too long, a lower attachment was made and the patella drawn down to its normal position. The undivided portion was not shortened, as it was considered that this would take place unaided with the relief of the strain, as is seen in other analogous conditions.

The result from this operation was disappointing. When use was first allowed there was no trouble, but very soon the slipping recurred, due apparently to the failure of the new attachment to hold. The slipping was naturally less marked than in the beginning, owing to the removal of the outer half of the tendon, but it was sufficient to cause considerable insecurity in use. To overcome this a second operation was performed and the tendon reattached, the suture being passed through a hole which was drilled in the bone at the point of attachment. The knock knee, even though not marked, was also corrected by osteotomy. The end result in this case cannot be stated, but as the faulty mechanical features have been corrected, it seems reasonable to expect a stable joint.

Case IX. N. M., a young woman twenty-three years of age, was first seen in April, 1899. The patella in the right knee had, without known cause, slipped out ten years before, and three times since the slipping had been repeated.

Simple conservative measures were advised, and the patient lost sight of until a few months ago, when she reported in response to a note. In the interval the weakness of the knee with slipping had become more frequent and the left knee had also given out. In both the capsule is much relaxed, and the displacement of the patella is so easily produced that there was much apprehension on the part of the patient during the examination lest this should happen. The angle in the line of muscular pull was quite noticeable.

For further treatment an operation was advised in both knees, but as yet it has not been performed.

Case X. Mrs. W. R. F., twenty-seven years of age, was seen first in May of 1902. The patella of the right knee had dislocated when she was eleven years old, and this had been repeated about once a year for five years. After this there had been no actual slipping until one week before the first visit. In the interval of eleven years the patient had always been careful of the knee and most of the time had worn an elastic knee cap.

The examination showed an otherwise healthy person with the capsule of the right knee joint considerably relaxed. The lateral movement of the patella was abnormally free and the displacement to the outside during the contraction of the quadriceps extensor muscle was more than normal. There was no knock knee but well marked flat foot.

For immediate treatment the knee was strapped with adhesive plaster, the flat foot corrected and an operation advised to permanently correct the trouble. As yet this has not been performed.

Case XI. F. M., a young and rapidly growing girl of seventeen years of age, was seen in September, 1900,

because of the slipping of the patella in one knee, which had but just developed.

The girl was growing rapidly and all of the structures lacked tone. The knees were relaxed and the feet also, so that there was marked pronation. This feature was corrected, the knee bandaged and a course of general tonic treatment with exercise advised.

For a time there was marked improvement following the treatment, but of late the slipping has recurred frequently, so that the patient has asked to have the operation performed and is simply awaiting a suitable time.

In considering such a series of cases it is at once obvious that the number is too small from which any positive conclusions can be drawn. At the same time there are certain features which are suggestive for application in the treatment of other cases. In the first place the lesion seems peculiar to girls or young women. It develops at the period of rapid growth, from twelve to sixteen years of age. It may develop either with or without violence. It is usually associated with flat foot, which is probably a factor in the development of the weakness of the knees. True knock knee is sometimes present. In all of the cases the tubercle of the tibia was displaced farther to the outside than normal, so that the line of pull of the quadriceps muscle contained a distinct angle. In the extreme cases without treatment the dislocation may become permanent, as in Case I.

It seems probable that if the condition is seen in the beginning, and the flat foot corrected, together with such treatment as would tend to improve the general tone, that the trouble can be corrected without operation. This has not been possible in any of the cases seen by me, but on general reasoning it seems probable.

If, on the other hand, the dislocation has recurred several times, and the period of osseous growth has passed, the weakness will probably increase unless the faulty mechanical features are corrected by operation.

If an operation is to be considered, the chief point to be borne in mind is the straightening of the line of the pull of the anterior thigh muscles. This is best accomplished by transplanting the outer half of the patella tendon so that it is attached well to the inside of the tubercle of the tibia. If the tendon be too long it can be shortened at the same time the attachment is made. The relaxed capsule is undoubtedly a result of the mechanical pull and can be entirely ignored, the relaxation disappearing as the strain is removed. Of the cases treated, seven were operated upon, and two of the others are awaiting operation. Of the operated cases, four had the outer half of the patella tendon, and one had the entire tendon, transplanted to the inside, and as three had both knees treated, there were eight operations, with normally strong joints in seven, the ultimate result in the eighth being uncertain, as sufficient time has not elapsed since the operation. Of the three cases in which other operations were performed, in one with both knees the capsule was quilted, in one the patella tendon was shortened, without transplantation as well as quilting the capsule, and in one the inner half of the tendon was transplanted as well as quilting the capsule; all relapsed. In one of these a second operation with the transplantation of the outer half of the tendon was performed with a perfect result. In both of the other cases I am very sure that if another operation could be performed, and the tendon transplanted as has been described, the mechanical feature which makes the dislocation possible would be removed so that the slipping would cease.

SCIENTIFIC ASPECTS OF MODERATE DRINKING.

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THE relation of the drinking of alcoholic beverages to the health and welfare of mankind presents several well-defined problems, the study of which has occupied the minds of many scientific investigators in the fields of pathology, psychology and sociology.

The evil results of the use of excessive quantities of alcohol are so obvious and are so noticeably exhibited in all grades of social organization that it is a cause for wonder that in considering the alcohol question so much stress is laid upon the evil effects of excessive use and so comparatively little time devoted to the study of the effects of smaller or the so-called "moderate" amounts of alcohol. To be sure, the fundamental argument that whatever conditions alcohol induces when used in large amounts it must induce in lesser degree when used moderately has been emphasized, but it nevertheless remains a fact that a very large number of individuals use alcohol in moderate amount with no visible signs of deterioration or other untoward effect. Such individuals have long been considered as representing the value of the use, as distinguished from the misuse or abuse, of alcohol; for the enjoyment of the social glass, it has been said, cannot reasonably be considered as injurious to such users of alcohol, and is but a legitimate pleasure that should not be denied a large class of individuals for the sole reason that a certain class, larger to be sure, misuses alcohol.

We speak of moderate drinkers and those that use alcohol to excess; we speak of the use and misuse of alcohol, but is the line between these two degrees, moderation and excess, sharply defined in our minds? In the popular mind at least, a man is not said to drink to excess until he gives some signs of incipient intoxication; until the quantities consumed are sufficiently large to affect the speech or power of locomotion. The use of the visible signs of intoxication as an index of moderate or immoderate use is, however, fundamentally wrong. It is well known that healthy individuals vary widely in their tolerance to alcohol. While the old tippler can drink several ounces of raw whiskey and exhibit

no noticeable effects, the young man unaccustomed to its use may experience headache and dizziness with a single glass of wine.

We may say, in general, that long before intoxication is apparent the user has in nearly every case consumed more than is recognized by all authorities as the limit that is physiologically permissible.

As early as 1864 an English physician, Dr. Anstie, considered that one and one-half ounces of alcohol was the amount that could be taken per twenty-four hours without ill effect. Dr. Anstie's limit is to-day used as the dividing line between moderation and excess by many of the largest life insurance companies in the United States. We find such statements as these in the instructions to medical examiners:

"The daily use of any alcoholic beverage in excess of an amount representing one and one-half ounces of absolute alcohol (Anstie's limit) is not lightly regarded by the home office."

Another paragraph, copied from the medical examination blank of a large life insurance company, is especially interesting, as it endeavors to translate the term 'one and one-half ounces of absolute alcohol" into the equivalent quantities of the various common liquors:

"In reporting 'over-indulgence' in drink, draw the line — since there must be some fixed standard — at Anstie's limit of a daily allowance equivalent to one and one-half ounces of absolute alcohol. Such allowance will be represented, in the case of ardent spirits, by three ounces; of sherry or other strong wine by two wineglassfuls; of claret or champagne or other light wines by one 'pint' bottle; of strong ale or porter by three tumblerfuls; and of light ale or beer by four or five tumberfuls."

Recently we have another standard established by Prof. J. J. Abel of the Johns Hopkins University.

"That there is a 'moderate' or average permissible quantity of alcohol I conclude from the experiments already cited; from the opinions of medical authorities in many fields; from the writings of economists, explorers and military authorities; and, lastly, from my own observations during a long residence in European countries; and this 'moderate' quantity I believe to be represented by one, or at most two, glasses of wine (10% alcohol) or one pint of beer, or their equivalents in terms of alcohol, in the twenty-four hours."

Abel's limit is, it is seen, about one-half that of Anstie.

Even the layman can see that these quantities are very much smaller than those ordinarily required to induce distinct intoxication. Furthermore with those accustomed to the use of alcohol the amount that can be ingested with no visible signs of intoxication is enormous. The following case is not believed to be uncommonly rare, remarkable as it may seem. I give the description as furnished me, prefacing with the statement that I have every reason to believe it correct, for subsequent correspondence has verified every detail.

"I have another acquaintance who is a real first-class 'lusher' and his 'case' I can report on with authority. About three years ago this latter case was boarding in the same house with me and nearly every night he and I played cards together, and it was his invariable habit to 'get outside' of an imperial quart of juice (whiskey) inside of three hours, from 9 P.M. to midnight, and oftentimes another pint on top of that. He never showed any signs of intoxication and was apparently perfectly O. K. in the morning, except his hand was of the 'early morning' variety. Through the day he also took numerous and sundry drinks of more than one variety of cocktails, etc., just how many I cannot say, as I was not with him. His daily quart he kept up from early June till into September, and later in the fall I saw him for several days, when he consumed the same amount. He was about thirty years of age, in apparent excellent health, never drunk to my knowledge, kept up his usual amount with great regularity; his drinking seemed to affect him not at all except shakiness in the morning. I have good reasons for believing he had been keeping this pace up for several years when I made his acquaintance and, so far as I know, still continues. He has, however, grown very stout and not disposed to take any exercise or make any exertion to get about."

Astonishing as these statements seem, it is nevertheless a fact that the large cities supply many such cases, and the use of intoxication, incipient or well-marked, as a measure of moderation or excess appears in the light of such a case distinctly absurd.

The tolerance of persons accustomed to the use of alcohol is no more remarkable than that exhibited by many persons in disease.

It is evident, therefore, that individuality and physical condition play a very important *rôle* in determining what is commonly meant by excess, and in a similar way it can be said that what applies to the state of intoxication likewise applies to the border line between moderation and excess. Moderation for one man may be decided excess for another. In taking into consideration either of the limits set by Anstie or Abel, therefore, we must remember that no general rule will apply in all cases, and one should hesitate very considerably before stating positively that either of the quantities designated by these authorities as "physiologically permissible" could be taken with impunity by all persons.

The first question that naturally arises in considering the effects of moderate drinking is "How does it affect the general health?" Obviously this question needs very careful study. One would naturally suppose that nothing would be easier than to determine this point by asking a large number of moderate drinkers if they noticed any special effect, beneficial or injurious, that they could reasonably attribute to their use of alcohol. A physician would place practically no value on such an investigation, for it is almost universally true that if a man likes alcohol he is

practically sure that, in small quantities at least it does him good.

Where, then, can we turn for impartial information on this most important point? A statistical study of the death-rate in large communities offers an excellent, though recognizably limited, field for study of this question. In hospitals, asylums and public institutions the opportunity is frequently had to secure data regarding the past and present habits of the individual with respect to the use of alcohol, and consequently furnishes the data for determining whether the death-rate is greater among total abstainers or drinkers. It is generally impossible to subdivide this latter class into moderate or immoderate drinkers, and the statistical evidence almost invariably found, *i. e.*, that the death-rate is noticeably lower among total abstainers, does not in reality prove anything except that those who drink to excess raised the death-rate of the class using alcohol.

Perhaps the most elaborate and careful study of the effect of the use of different amounts of alcohol on disease and the death-rate is that instituted by the Collective Investigation Committee of the British Medical Association and republished by the United States Brewers' Association in 1888. The method of investigation was, in brief, as follows:

As a result of a schedule sent to every member of the British Medical Association, 178 replies were received, reporting in all 4,234 deaths. These physicians were asked to copy from their death certificate book data regarding the patients, — occupation, social position, age at death and cause of death, and to indicate to which one of five classes the patient belonged. These classes were: (1) Total abstainers. (2) The habitually temperate, that is, men who drink small amounts and only with meals and rarely take spirits except for medicinal purposes. (3) The careless drinkers — men who without being intemperate or free-drinkers, yet do not confine themselves within a rigid rule; who do not demur to drinking spirits occasionally as a beverage; who may at times drink between meals or even to the extent of intoxication occasionally, but who do not make these practices a habit and, on the average, do not materially exceed what has been termed the "physiological amount" of one and one-half ounces of pure alcohol daily. (4) The free-drinkers — men who drink a fair amount or "take their wine freely," habitually exceeding the physiological amount to a material extent, but yet who cannot be called "drunkards" or considered to have forfeited a character for sobriety. (5) The decidedly intemperate, drinking men, hard drinkers and drunkards.

Though we may not agree with the nomenclature of these different classes, it is certainly obvious that considerable care was taken to segregate the users into fairly well-defined classes. It is very much to be regretted that the data regarding the first class are practically valueless, as it comprised less than 3% of the total number of cases. The conclusions that have to do with the general question we are considering are:

"That habitual indulgence in alcoholic liquors beyond the most moderate amounts has a distinct tendency to shorten life, the average shortening being roughly proportional to the degree of indulgence.

"That total abstinence and habitual temperance augment considerably the chance of a death from old age or natural decay without special pathological lesion."

It is a digression that is, perhaps, warranted if reference is made to the present status of alcohol in medicine. In March, 1902, a meeting of the Suffolk District Medical Society was held in Boston, and a number of papers were read on the use of alcohol in therapeutics. In June, 1902, the annual meeting of the Massachusetts Medical Society was devoted to alcohol in therapeutics. The November (1902) number of the *Practitioner*, an English medical journal of high repute, is devoted to this question, and while there are arguments on both sides, the overwhelming opinion is that alcohol has been accorded a false position in therapeutics.

Alcohol is not going to be entirely discarded. It never will or never should go, as it is a therapeutic agent of great value in certain cases, but its rational use is to be very much more circumscribed than ever before. One very typical example of the change in opinion and custom is furnished by the records in the Massachusetts General Hospital in Boston, which used, in 1884, alcoholic beverages per patient per year to the amount of $1.84, while in 1900 this amount had fallen to 29 cents per person per year.

The therapeutic action of alcohol is not primarily connected with the question we are discussing, — the moderate use of alcohol as a beverage, — but as many use alcohol on the pseudo-basis that it is "good for the health," it ought to be clearly stated that the most progressive medical men are changing their views radically regarding the use of alcohol as a tonic, aid to digestion, heart stimulant, etc. It has been a source of wonder to physicians that so few cases of alcoholic excess are attributable to the initial use of alcohol medicinally. This is undeniably true, but we Americans are notorious self-dosers, and it is certainly true that a large amount of alcohol has been taken, in a sense as a medicine, as an aid to digestion or as an appetizer. It is to be feared that the small percentage of alcoholics arising from alcohol prescribed by physicians would be many times multiplied from alcohol self-prescribed. Alcohol from the therapeutic standpoint of the best medical authorities is primarily a narcotic, and self-dosing with it cannot be countenanced by the medical profession.

We have seen the difficulties in ascertaining the effects of moderate drinking by the direct questioning of individuals, and we have seen that vital statistics in general are capable of a wide degree of interpretation, the chief element of error being the inability to distinguish satis-

factorily between the moderate and excessive users. If, however, instead of taking the vital statistics of a whole community, we take a class of selected lives in which, so far as possible, the excessive drinkers are eliminated and if, furthermore, we have means for distinguishing between the total abstainers and the moderate drinkers, data of much greater value for the question we are discussing may be accumulated. Almost ideal conditions for this differentiation obtain in the statistics of the great life insurance companies, for, as a recent writer in a medical journal strongly phrases it:

"Whatever difference of opinion there may be between the temperance fanatic and the tippler, the W. C. T. U. and Lincoln, as regards General Grant's special brand of fighting whiskey; the army canteen; drinking toasts in the White House; the traditional centenarian, whose chief diet is whiskey and tobacco; or the theory of alcohol as a food—I repeat, whatever opinions may exist on these and kindred topics, one thing is certain, — the financiers all over the world who have their money invested in life insurance companies all agree that drinkers belong in the class of hazardous risks."

In life insurance statistics we have the best separation of heavy drinkers from moderate drinkers that it is possible to make, as is shown by an examination of the conditions under which men are accepted as risks by life insurance companies. It has been said by medical men that a few companies will insure anything this side of the grave, but it is nevertheless a fact that the large number of the old line companies exercise every precaution to examine an applicant thoroughly and eliminate the hard drinkers.

The following questions are taken directly from the printed form of application for a policy in a large life insurance company, and are practically a copy of those used by all the large companies:

"Do you ever use or have you ever used wine, malt liquors or any alcoholic stimulant? If so, which, when and in what daily quantity? Have you ever used any of them to excess? Describe particularly your past habits in all these respects. Have you been or do you intend to be engaged in, or connected with, the manufacture or sale of intoxicating drinks or liquors? Have you been treated for alcohol or narcotic habit?"

The examining physician is also called upon to answer:

"Does applicant use beer, wine or other alcoholic stimulants daily and habitually? If not daily, how often? What is used and how much? What have the past habits been in this respect? Have any of them ever been used to excess? Are there evidences of impaired health or constitution from use of stimulants or narcotics? Has applicant taken treatment for alcohol or narcotic habit?"

In a special statement to medical examiners printed on the reverse of the policy we read: "The applicant's habits regarding the use of alcoholic stimulants . . . should be definitely ascertained, and in stating them in your report avoid the use of such words as 'moderate,' 'occasional' and 'temperate.' Where their daily or frequent use is suspected, assure yourself that the stomach, liver, kidneys and nervous system are free from any evidence of injury."

If the number of questions is a fair index, much more importance is now laid on the applicant's relation to the use of alcoholic liquors than twenty years ago.

In spite of every precaution, a number of heavy drinkers are able to get insurance, and a large number of the lawsuits over insurance matters are on the ground of the excessive use of liquors and therefore a violation of the part of the contract covering the applicant's answers, for those answers are now made a definite part of the insurance contract, and hence greater care must be exercised on the part of the applicant to avoid any chance for suspected fraud.

It is the custom of many of the large life insurance companies to keep an eye on the physical condition of their risks. This shows that there is at least an effort made to keep out the hazardous lives, for in such cases the companies lose no opportunity to drop the risk and refuse to reinstate him after an overdue premium.

Consequently it seems a fair statement that those carrying life insurance are selected lives; the proportion of heavy drinkers is kept at a minimum; and that no statistics as yet available separate in any better way the moderate from excessive drinkers in a community.

The further segregation of risks into the two classes, abstainers and non-abstainers, has not been common, at least in this country, though there are several societies in England that have done this for a number of years. Obviously, a study of the death-rate of total abstainers and the moderate drinkers would give the best comparisons of the effect of the moderate drinking of alcohol upon health.

The office having the largest experience in abstainers' lives is the United Kingdom Temperance and General Provident Institution, which was established mainly by Friends in 1840, and has accumulated funds amounting to about $30,000,000. It is one of the largest English mutual companies. For a number of years after its establishment, only abstainers were admitted. Later on the lives of carefully selected moderate drinkers were accepted, but the two classes were kept separate and distinct, and the bonus or profits awarded each five years to the members of the two classes. During the past thirty-five years (1866–1901), the general average ratio of actual to expected deaths in the total abstinence section has been 24.7% less than that in the general section. The bonus was correspondingly greater in the temperance section. Similar results are reported from all the other companies making this distinction between total abstainers and moderate drinkers.

In the American companies very little data are at hand. The most elaborate investigation was carried out under the direction of Dr. Emory McClintock, actuary of the Mutual Life Insur-

ance Company of New York in 1895. In his report on the results of his investigation, Dr. McClintock says: "The abstainers show, therefore, a death loss of 78% of the maximum and the non-abstainers 96%." This difference in favor of the abstainer is slightly lower than that of the English companies. While undoubtedly there may be a valid question raised as to what proportion of this favorable death-rate is due to general good habits irrespective of the use of alcohol, the difference of nearly 25% in the English companies and of 18% in the investigation of Dr. McClintock is obviously altogether too large to attribute wholly to habits other than that relating to the use of alcohol.

Just what is scientific and what is not is sometimes difficult to state, and although personal opinions founded on impressions can hardly be considered as scientific, in accumulating the material for this paper I have had considerable correspondence with a number of insurance authorities, all high officials in the large old line companies, whose opinions surely are worthy of consideration.

A physician, president of the medical board, writes: 'We have on several occasions endeavored to utilize the statistics in our possession, but have found it difficult to arrive at any satisfactory conclusion, save the general one that anything but the very moderate and occasional use of liquors is prejudicial." (Oct. 28, 1902.)

The president of another writes: "As between the two classes (total abstainers and non-abstainers) we know there is no question that the total abstainers are the better risks." (Jan. 26, 1903.)

From the actuary of another we have much the same: "Personally I am convinced that the mortality among total abstainers always has been and always will be less than among moderate drinkers of alcoholic beverages." (Oct. 15, 1902.)

A recent writer in the *Spectator* the recognized organ of the life insurance business says: "It is now becoming generally recognized that the alcohol habit is one of the main factors in determining the length of life. No life office will knowingly accept the proposal of any one known as a hard drinker. Evidence of a very striking kind is rapidly accumulating which shows that even the moderate use of alcohol is prejudicial to health and longevity. In England about a dozen life offices recognize this fact in one of two ways: (1) By giving a reduction of premium to abstainers, or (2) awarding them a larger share in the profits. Last year the Sun, one of the oldest life offices, established in 1810, opened a special section for abstainers, giving them a reduction of 5% in their premiums. When the Sun life office announced a reduction in premiums for abstainers, *The Financial Times*, commenting on the fact, said: 'A battle has long ranged round the figures of those offices which keep their men in separate sections and always show a higher bonus to the longer-lived abstinent. Strenuous efforts have been made to minimize these important statistics, and it is quite likely that they do not mean all that has been claimed for them, but when we see a first-rate company like the Sun offering a direct and immediate cash bonus to abstainers, it looks very much as if the case had been proved.'" (Aug. 22, 1901.)

Among the multitudinous effects of alcohol on the human organism, none is so characteristic and invariable as that upon the higher senses. Professor Abel says:

"The best bred man indulging in wine with permissible moderation no more escapes the minor psychical changes induced by it than does its meaner slave fail of its sense-destroying power when he drinks 'till he remembers his misery no more.' In the case of the former the mental changes induced will never attain the degree when self-respect and social conduct are outraged and they will pass unnoticed by all except those who are keen observers of their own mental states."

The effects of the smaller or moderate doses on mental activity are generally no more apparent to the ordinary observer than are the effects of similar quantities on health or length of life. To the trained observer in the psychological laboratory, however, small quantities of alcohol produce certain well-marked and characteristic phenomena in the brain action that should be very carefully and clearly stated to the general public, for they play a very important *rôle* in determining a man's efficiency in the struggle for existence. The lesser psychical effects of alcohol were not clearly defined until the experimental psychologist elaborated his methods for studying the mental state of man. By means of certain forms of apparatus and tests to be found in every psychological laboratory, it is not difficult to determine with reasonable accuracy the mental activity of an individual. Any variation from the normal is easily detected, and consequently the work of experimental psychologists, especially Kraepelin and his school, furnishes reliable data for a consideration of the effect of alcohol on these higher mental processes. The initial apparent mental stimulation immediately following the ingestion of small quantities of alcohol observed in some of the simpler tests was generally followed by a retardation period which resulted in a sum total of depression, and with the types of mental activity involving constructive operations, the time required for the completion of the mental process was lengthened from the first.

These results on small quantities of alcohol taken in a single dose are, however, not of as much importance or have not the significance of those experiments in which the alcohol was administered in small quantities for a considerable period of time. In the experiments of August Smith, the amount of alcohol used was about two and one-half ounces per twenty-four hours, and his data admit of no other possible deduction than a noticeably inferior mental activity, which, indeed, was apparent after eight days of abstinence.

In general, we may say that alcohol diminishes

all forms of mental activity. The different phases of this process are very complex, but the accepted explanation of to-day is that alcohol paralyzes the inhibitory functions, and the reserve naturally acquired with age is cast off; a spirit of recklessness and of disregard of consequences is developed. If larger amounts of alcohol are taken, the speech becomes freer, a feeling of egotism is paramount and doubtless more than one brilliant speech has been *delivered* under this apparent stimulus, though in its *preparation* the effect of alcohol could have been but deleterious. As the quantity of alcohol ingested becomes larger, the subject becomes loquacious, boisterous, careless of speech, a coarseness and vulgarity enters into his remarks and finally the speech becomes thick and unintelligible, locomotion becomes impossible and a deep coma is induced. The last acquisitions of mature man are the first to be affected, the first movements of the child the last to give way to the action of alcohol. All these effects, from the retardation of mental processes by small quantities to complete intoxication by larger amounts, form a perfectly connected series of phenomena of alcoholic narcotization.

The consideration of the paralyzing action of alcohol on mental processes brings us face to face with one of the most important phases of the struggle for human existence. By just so much as alcohol in large or small quantities diminishes mental activity, by just so much does it handicap the man whose keenness of perception and manipulative skill are absolutely essential to him in this day of the sharpest competition known in the history of the world. The brain incipiently narcotized is not a normal organ; a man is not that complete master of himself that he must be to succeed, with that most intricate organism, the brain, imperfectly functionating. Smith tells us that quantities of alcohol of about two and one-half ounces retarded brain action even after a week of abstinence. Other observers have noticed this lasting effect, and Professor Cushny points out that if this is true many habitual drinkers, even if using moderate amounts, are persistently narcotized and never their real selves.

One of Kraepelin's pupils, Aschaffenburg, contributed greatly to our knowledge of the influence of alcohol on practical work involving mental processes by his experiment on the effect of one and one-quarter ounces of alcohol on four typesetters. This form of work is peculiarly adapted to the study of questions of this nature. The subjects were all accustomed to the use of beer, but abstained for the experimental period. Every detail was so perfected that the test was scientifically accurate and simultaneously adapted to the practical every-day life of the men, with the single exception of enforced abstinence. On the second and fourth days, each man was given one and one-quarter ounces of alcohol in the form of a Greek wine fifteen minutes before the regular working test began. Although there were no more errors than usual, the amount of work done with alcohol was 15% less than that done without it. Here we have a complete scientific demonstration of the effect of a so-called moderate amount of alcohol (Anstie's limit) on the efficiency of labor.

This brings us to the very important question of the relation of the efficiency of labor to the success of employer and employee alike. America, by reason of her progressiveness and ingenuity, occupies a prominent position in the manufacturing industry of the world and consequently the deleterious action of even small amounts of alcohol on mental activity and efficiency must be carefully guarded against in order to avoid the handicap the English workman has by reason of his custom of drinking alcoholic liquors during working hours. We are told that the recently returned Mosely commission has emphasized this point in comparing American and English workmen. That our manufacturers have been alive to this question is evident from the report of Commissioner of Labor Carroll D. Wright on "Economic Aspects of the Liquor Problem." Of the 7,000 establishments examined, over 75% in employing new men were accustomed to give consideration to the habits as to the use of intoxicating liquors, and more than half made some requirement that all employees or employees in certain occupations shall not use intoxicating liquors.

In response to a letter asking for the rules of the New York, New Haven & Hartford Railroad regarding the use of alcoholic liquors by employees, the following was received from the office of the first vice-president:

"In our book of rules for the government of the operating department we have a rule reading as follows: 'The use of intoxicants by employees while on duty is prohibited. Their habitual use or the frequenting of places where they are sold is sufficient cause for dismissal.'" The writer adds: "This, I believe, is the almost universal practice on railroads in the United States." (Dec. 24, 1902.)

Applicants for employment on the Boston Elevated Road are required to take oath that they do not use intoxicating liquors, if such is the case. Those not taking this oath are not considered. The rules of the company concerning the use of liquor are as follows: "If a car service man is known to enter a saloon in uniform, he is suspended from work for seven days. If he enters a saloon in uniform a second time he is discharged. If he is known to be intoxicated, whether on duty or not, he is discharged."

It is clear that at least in certain employments strict measures are adopted to insure the highest efficiency by practically prohibiting the use of alcohol, for that is what it really amounts to in a large number of cases. A man cannot use alcohol and retain his position. I believe that this action on the part of employers of labor will become more and more universal, for a problem involving so great social and economic interests as the effect of the moderate use of alcohol on the efficiency of labor is sure to attract increas-

ing attention. All employers cannot do as Mr. Carnegie is reported as doing, that is, give each employee a check amounting to 10% of his yearly wages if he can truthfully say that he did not touch intoxicating liquors during the past year, but certainly the increased efficiency and the reliability that is exhibited in a marked degree by the abstainer is sure to tell in the amount, if not the quality, of his production, and ultimately this fact will have to be recognized by all the employers.

Two years ago I heard a young clerk remark that in Boston it was considered decidedly unwise for a bank clerk to use beer or wine at his noon lunch. The following letter from one of the best-known banking men in Boston is self-explanatory: "I know one bank teller who lost his place because the directors knew that he frequented an ale and beer counter for his lunch and took those drinks with the food.

"I know a bank bookkeeper who had been marked for the cashiership of another bank, but the president of the latter, going to New York on the same boat, saw him using similar drinks and concluded that he would better not take the risk. The president afterwards stated this in my hearing. Of course individual opinions differ in that matter as in all others, but the practice is not looked upon with favor by bank managers, at least in Boston." (Oct. 29, 1902.)

A personal letter from a railroad president, probably one of the finest examples of a man living the strenuous life, throws an interesting light on the moderate use of alcohol and the relation between employer and employee:

"I more and more hear it said by business men that the business man of the future must be a total abstainer. It is very generally the practice now, I think, for men who take wine at dinner not to take anything at luncheon or during business hours. This would seem to indicate that the use of alcoholic liquors is considered on the whole injurious. It is well known, also, that so far as employees are concerned, all large employers establish rules which make it practically impossible for an employee who uses liquor to remain in the service." (Dec. 30, 1902.)

The president of a large life insurance company writes in a personal letter, the phraseology of which is so telling that I give it in detail: "More and more does the man who works with either his head or his hands need for the efficiency which is absolutely demanded of him that clearness and steadiness which is possible only to a high degree of temperance; and the man who impairs his efficiency and loses time through indulgence is walking toward the door that will shut him out from promotion and even employment. Men, whatever their position or range of their capacity, cannot in these days afford to be at less than their best." (Jan. 26, 1903.) Such statements as these have a force and significance that must demand attention. The experience of the large employer of labor verifies in the smallest detail the deductions of the psychological laboratory — that the moderate use of alcohol diminishes a man's efficiency.

The fact that a large number of individuals become so addicted to the use of alcohol that it requires all the skill of the medical profession, accompanied by every known psychological aid, to combat the self-destroying appetite, demands a careful consideration of the danger of acquiring the alcohol habit as a result of its "moderate" use. Just what the alcohol appetite is has been the subject of much discussion in medical, sociological and psychological journals. That it is hereditary is in opposition to Weissman's theory, and probably we must admit that a craving for alcoholic liquors is not directly transmitted from parent to child. That the resistance of the individual to the narcotic effects of alcohol is lowered by the alcoholic progenitors seems to be much more likely to be the case. The idea that a craving is transmitted has, as Partridge points out, unquestionably done an incalculable amount of harm by relieving the individual of a sense of moral responsibility. "The belief that a habit is incurable does more than anything else to compel its continuance." The theory that the moderate use of alcohol can transmit a craving for alcohol would hardly seem plausible; but that the resistance to the strong impulse to use alcohol after acquaintance with it may be weaker in the progeny of moderate drinkers is in no sense an unreasonable assumption, though lacking in absolute proof.

That the use of moderate quantities of alcohol has a strong tendency to lead to its excessive use is a matter of common observation. To what extent this acquisition of the alcohol appetite prevails is very difficult to estimate, for unless a man drinks to intoxication we have no means of knowing the quantity used. The only statistical data at hand are those by Neison, quoted in Sieveking's "Medical Adviser in Life Assurance." There it is estimated that there is one drunkard for every 74 of the male population, and a footnote by Sieveking adds, "We fear that more recent investigations show even a larger proportion." In the investigation of the British Medical Association previously referred to, we have, of the 4,234 cases, all over the age of twenty-five years, 30% decidedly intemperate and 15%, or one in six, very hard drinkers.

If these proportions are generally true, the danger of the habit-forming tendency of alcohol is indeed a real one. Furthermore, as we have seen, long before the drunkard stage has been reached, the individual has passed the most liberal estimate as to what is moderation, and is drinking to excess. Consequently we may *very conservatively* estimate that one in 50 of our male population uses liquor to excess and has a well-defined, though not necessarily absolutely, uncontrollable appetite for alcohol. A physician with a large practice, an instructor of twenty-five years' standing in one of our largest medical schools, in answer to a request for his opinion on the habit-forming tendency of alcohol says: "In my experience the habit-forming tendency

has been so apparent in every single individual that I do not think it can be for an instant questioned. I have seen so many times the teaspoonful of whiskey or the half glass of beer or the little glass of wine taken at a regular time so looked forward to and so many times gradually increased, and I have had to interdict the use of it, that I cannot feel this is a thing which can be questioned for a moment, that any amount of drinking, no matter how small, invariably tends to form a habit which inevitably tends to increase." (Oct. 22, 1902.)

The medical director of a large life insurance company writes: "The great trouble (with occasional drinking) is that a young man may get into the habit of taking some form of alcohol every day, and in this I include beer and ale, and as he grows older he may feel the necessity for a larger amount, and before he realizes it he has become an habitual drinker." (Oct. 20, 1902.)

Certainly it is not unreasonable to conclude from this evidence that there is a real danger from the habit-forming tendency of alcohol — a danger that we should not overlook in any consideration of the use of alcohol.

We can now more intelligently consider the conditions existing in actual life and determine in how far the moderate use of alcohol is compatible with scientific deductions. Obviously, we must very decidedly alter our views regarding what is moderation and what is excess. Certainly Abel's limit of one pint of beer per day is not too conservative. Indeed, the facts here collated would lead to the emphatic discountenancing of the *habitual* use of alcohol in any amounts. We may say with entire reason that many of our best citizens, men the products of whose brains have furthered our commerce and industries, literature, science and religion, have used liquors in moderation and perhaps habitually all their lives and yet are apparently not injured by them. But such men are, in fact, but a very small proportion of our male population, and we must consider the effect of moderate drinking not only on a select class of men, whose very success in life has shown their superior ability to exercise judgment and restrain upon their impulses and practices, but we have to consider its effects on the average man.

Dr. J. S. Billings has, at the instance of the Committee of Fifty, prepared a statement of the result of a series of questions submitted to 900 men of the type designated above as "selected." They were the typical brain workers of the United States. Accompanying the schedule returned with the answers, a number of individuals added paragraphs expressing their personal opinion. The same differences of opinion invariably found in an investigation of this nature are here present, though the general opinion is to the effect that the use of alcoholic drinks as a stimulus to mental effort gives bad results, although they may be agreeable as restoratives in fatigue.

Thus these data indicate that even to the select class of men the moderate use of alcohol is, on the average, of doubtful benefit, and we see here nothing to alter our view that the *habitual* use of small amounts of alcohol cannot be considered innocuous even to the select class of men. As regards the *occasional* use we may say that those men over forty, whose self-restraint is such as to insure that "self-respect and social conduct" are never outraged, who use *occasionally* the glass of wine with the last meal of the day and after the important work of the day has been done, are the individuals whose use of alcohol is least incompatible with the teachings of science.

With the average man, and especially with the young man, the case is very different. The average man, with perhaps a family or relatives dependent on him, should not jeopardize his chances for success by the use of alcohol. The diminution in mental and muscular power invariably accompanying the use of even small amounts of alcohol is a potent factor in determining his efficiency, chance for promotion and appreciation by his employers. Clearness of thought, quickness of perception, keenness of sight, deftness of touch, skill and accuracy in manipulation are valuable assets of the successful man, and each and all of these factors are so immediately affected by the use of alcohol as to practically interdict its use with men whose ambition leads them to hope for and strive for the best in life.

Statistics show that the drink habit is formed most frequently between the ages of fifteen and twenty-five, and it is with the young man that special pains should be taken to show clearly that any use of alcohol, even though it be occasional, must be regarded as contrary to scientific teachings. While alcohol in small amounts does not produce any demonstrable changes in the tissues, it certainly does retard the physical and mental growth of youth, for the growing organism is especially susceptible to the injurious effects of alcohol. The habit-forming tendency of alcohol is, as has been stated before, a factor in the moderate use of alcohol that it is absolutely necessary to take into consideration. No man need fear an inherited craving until he first tastes alcohol. As Partridge says, it is inconceivable that a person can crave a thing that is outside of his experience. Because the father was a heavy drinker it is, however, absolutely necessary for the son to abstain wholly would he avoid the great danger of forming a habit.

In general, while the impulses are uncontrolled by that reserve acquired with age, the danger of forming the habit must always be recognized, and by acquiring the alcohol habit I do not necessarily mean to the degree that the user becomes a miserable sot, but the feeling of the need of any amount of alcohol regularly — a feeling that can be considered in no other way than an injurious habit, sure to be followed by a train of physical and mental misfortunes that distinctly incapacitates the sufferer for the normal life of man.

THE USE OF OBSTETRIC FORCEPS.

BY WARREN R. GILMAN, M.D., WORCESTER, MASS.

AT first thought it may seem a waste of time to ask attention to remarks on the use of obstetric forceps, for almost all men in active practice use the forceps freely and without hesitation, and there are few, I fancy, who seriously question their own skill in the use of the instrument. The frequency with which we use the forceps gives confidence, and in many cases causes a certain amount of carelessness. There is danger that we may ignore the fact that serious harm may be done both the mother and the child.

In my own work I am obliged to criticise my skill not infrequently, and I feel sure, from my observation of the work of others, that due care is not always used and that the principles of the mechanism of labor are not always given proper consideration. There is the danger that we may come to look upon the forceps as a simple and harmless instrument of traction; to think that it is only necessary to grasp the head — no matter in what way — and then pull until delivery is effected. At times it seems as if some men look upon the head as a round, inanimate body which is to be pulled through a perfectly straight, cylindrical tube. If five pounds of traction is not effective, ten pounds is applied; and so on, the only limit being the strength of the man who holds the forceps. I believe, however, that the men who rely upon strength alone and use little or no skill and care are the exceptions. Most men have it in mind that an undue amount of force may do harm, and try to apply and direct the force used according to what they believe to be the proper method. When moderate traction fails to deliver the head, there is a tendency to ignore the art of forceps delivery and fall back upon brute strength. Instead of stopping, examining the situation carefully and perhaps reapplying the forceps, many men become unnecessarily worried, and decide that the child must be delivered at once. Delivery is usually effected, but the operator often has little reason to congratulate himself upon a skilful operation. No one denies that serious harm is sometimes done by the ignorant and careless use of forceps. There is no doubt, also, that the man who uses the instrument carefully and skilfully sometimes inflicts injuries upon the mother or the child.

Forceps extraction is a serious operation in certain cases, and the results are not always satisfactory. Skill in the use of forceps can be acquired only by practice, and it goes without saying that a young practitioner should begin his training with the low forceps operation. When any marked delay occurs in the labor of a multiparous woman after the head has reached the perineum, there is opportunity offered for the use of forceps. In such cases there is usually a well-dilated and relaxed outlet, and there is hardly a possibility of doing any harm. Here one can gain familiarity with the instrument and learn the " feel " of the forceps blade as it glides into proper position upon the side of the head. The forceps should be applied with care and precision even in these simplest cases; and traction should be intermittent and under good control.

It is of the greatest importance that the exact position of the head be determined in every case before the forceps is applied. Neglect of this detail is the chief cause of failure in many attempted forceps deliveries. It is not enough to know that the head presents. The exact position of the head in the pelvis should be determined, and the degree of flexion or extension of the head made out. The more of the necessary information which can be obtained by external examination, the better; but it must be obtained, even if the whole hand has to be inserted into the vagina or uterus. When one is ready to apply the first blade of the forceps, he should be able, so to speak, to see the inside of the pelvis and apply the blades exactly in the proper position.

I have seen the forceps applied so many times when the operator did not know whether the occiput was anterior or posterior, and had made no attempt to find out, that I feel it proper to emphasize strongly the importance of the careful preliminary examination. A man who has not at least a fair amount of skill in making out the position of the head has no right to use the forceps.

I do not wish to discuss the indications of forceps at this time. There are certain conditions which demand forceps interference at once; but there is more or less uncertainty in a large number of cases as to the necessity of such interference. The man who is skilful in the use of forceps is warranted in using the instrument earlier and oftener than a less experienced person. His skill often saves his patient an hour or more of suffering. A poor operator should hesitate to interfere except in the simplest cases; for the saving of a few hours of labor pains hardly compensates the woman for serious laceration of the vagina and perineum.

Laceration of the genital canal is to be guarded against in every labor case for reasons too well known to need enumeration. There are emergencies, however, when it is necessary to deliver at once; and at such times one should not be deterred by the prospect of even serious lacerations, if the life of the mother or the child is at stake.

The term " low forceps " is used when the head has descended far enough to rest upon the perineum. If the head has rotated forward, the application of forceps is not difficult as a rule; but in a primipara, with a head crowded down upon the perineum, and a large caput succedaneum presenting, more or less difficulty may be met at times.

The fingers of the right hand guide the left blade into place along the left side of the pelvis and direct it to its proper position over the left ear. The peculiar motion of the forceps blade as it glides over the head is difficult to describe, and has to be learned by practice. The left blade is held in position by an assistant and the

right blade introduced upon the fingers of the left hand, which guide it to place on the opposite side of the head. If this blade does not lock easily, it should be reintroduced and brought to the proper position. The forceps when locked grasp the head in the occipito-mental diameter, and in low forceps one should not be satisfied with any imperfect or oblique grasp of the head.

Traction should be made forward until the occiput clears the symphisis; then the handles are raised and the head extended over the perineum. The perineum should be dilated slowly by intermittent tractions, the head being allowed to recede between them. It is my custom to remove the forceps when the head has thoroughly dilated the perineum. With the patient on her left side, the thumb behind the anus pushes the head forward over the perineum, and delivery of the face is accomplished as in normal labor.

If the head is delivered by the forceps, there is a little more danger of hurrying the passage of the face over the perineum.

When the occiput is posterior at its engagement in the pelvis, it usually rotates to the front. The mechanism of this rotation has been well described in a recent article by Gossett in the *American Journal of Obstetrics*. When the occiput remains posterior, even after reaching the floor of the pelvis, delivery sometimes occurs spontaneously; but very often it is necessary to deliver by forceps. The occiput usually lies at the right of the sacrum, and the blades of the forceps should be applied to the sides of the head; the left blade over the right ear, which is posterior, handle slightly elevated to grasp well back on occiput; the right blade over the opposite side of the head in a position which allows easy locking. Traction should be downward and backward as far as the perineum permits. Rotation of the occiput to the front sometimes takes place even toward the last of the second stage and during extraction with the forceps. Any tendency of the head to rotate must be watched for and favored. If the handles turn more and more toward the left, the rotary motion may be helped slightly. If the occiput rotates until the sagittal suture is directed to the anterior part of the pelvis, the forceps should be removed and reapplied as in ordinary cases of occiput anterior.

If there is no rotation to the front, traction is directed backward until the root of the nose passes the symphisis; then the handles are carried up as the occiput comes out over the perineum. In these cases extraction is more difficult, and there is more likelihood of tearing the perineum than in occiput anterior delivery.

The term " mid forceps " is used when the greatest diameter of the head has passed the superior strait and the lowest part of the head has not reached the floor of the pelvis. When the head is in this part of the canal the sagittal suture lies in an oblique diameter as a rule, but is sometimes transverse.

With the occiput in the left anterior position, the right hand is introduced along the left side of the pelvis and the posterior ear located. The left blade of the forceps is introduced on the hand and applied over the ear. The right blade is slipped into the opposite side of the pelvis on the fingers of the left hand and brought into a position which permits easy locking. If the blades do not lock at once, the right blade must be reapplied. The left blade has been applied by touch in the proper place and the right blade must be adapted to the opposite side of the head; in order to lock with the left blade, the right has to be rotated slightly forward toward the front. No change must be made in the position of the left blade after it has been properly placed.

In occiput right anterior position, the blades are applied in the same way; but the right blade is placed carefully over the posterior ear and the left blade rotated somewhat to the front to lock properly. In all cases care must be taken to keep the guiding fingers inside the cervix, so that the blades are passed between the cervix and the head. Traction is made downward until the occiput clears the symphisis, as in low forceps. The moderate rotation from left or right to the median line is to be favored.

When the head lies in a transverse position the application of the blades to the sides of the head is a very difficult matter and is sometimes impossible. When applied in this way, the posterior blade lies in the hollow of the sacrum and the anterior blade lies in the median line beneath the symphisis. The difficulty of applying the forceps in this manner is so great that many men advise against the attempt and apply it to the sides of the pelvis. When the blades are applied to the sides of the pelvis, they grasp the transverse head in the occipito-frontal diameter and in locking there is a good deal of pressure exerted upon the head. In transverse positions it is my custom to apply the blades to the pelvic curve and then attempt to rotate them into position on the sides of the head. If much difficulty is met, I am satisfied with an oblique grasp of the head: one blade over one temple and the other over the opposite posterior parietal region.

If it is found, after locking the blades, that the handles do not come into complete apposition, undue compression of the head may be avoided by placing a folded napkin between the handles. It is especially important in these cases to use tentative traction at first, to see if a firm grasp has been secured. As the head is brought down toward the perineum, forward rotation is to be expected and favored; when it has taken place, the forceps should be reapplied or slipped into the more desirable position on the sides of the head.

In describing the use of forceps on the head which lies with the occiput to the rear, I will consider the position O. D. P., since that is much more common than O. L. P. The progress of labor in these cases is usually slow and the head somewhat extended. Forceps delivery is indicated more frequently than in anterior positions.

The right hand is introduced into the left side of the pelvis, inside the os, and the fingers locate the posterior ear. When the hand can grasp

the head an attempt should be made to turn the occiput to the front. In a certain number of cases this is successful, and the head is then in a much more favorable position for the application of forceps.

If manual rotation cannot be accomplished, the left blade of the forceps is slipped in upon the fingers of the right hand until it is in the proper position over the posterior ear. On the left hand as a guide, the right blade is passed in on the right side of the pelvis and rotated forward slightly until it locks easily.

Traction is made downward until the head reaches the floor of the pelvis. Rotation of the head to the transverse and then to the anterior position is to be helped. If the blades of the forceps have been properly applied, it is safe to use considerable force in helping rotation, and a good operator can often bring the occiput to the front. When this has been accomplished, the forceps will have been completely inverted and the tips will be found to lock backward into the hollow of the sacrum. The instrument should then be removed and reapplied to the occiput, which lies in the right anterior position. Extraction then proceeds as in an ordinary low forceps case.

When the occiput is posterior and the head extended, the application of the forceps in a reversed position is strongly advocated by many. The blades are applied to the occipital end of the head, with the tips directed to the back of the pelvis. Traction should be gentle and exerted only until flexion of the head is brought about. After the head has been flexed, the grasp of the forceps in the reversed position becomes very insecure and further traction is not to be made. This procedure is directed solely to the securing of flexion, and is not a method of delivery.

In some cases the attempt to rotate the occiput to the front is not successful, and the occiput settles into the hollow of the sacrum after it has reached the floor of the pelvis. Delivery must then be carried out as described in low forceps operation on persistent occiput posterior.

The term "high forceps" is used when the largest diameter of the head has not passed the superior strait. The head may be free above the strait, or just entering the canal. The high forceps operation is very difficult, and, in the hands of any but the most experienced, dangerous for both mother and child. When the head floats, or the largest diameter of the head does not come through the superior strait, I very much prefer version to forceps. With the average practitioner the results of version are much better. In such cases one's attention should be directed to keeping the membranes intact until he has decided upon his course of action. If the membranes are ruptured and the uterus contracts upon the body of the child, version is dangerous, if not impossible.

When the head has engaged, the forceps should be applied as in the mid-forceps operation. The blades are passed in along the sides of the pelvis and then adapted to their proper positions on the sides of the head. It is often impossible to place them in perfect position, and one has to be satisfied with an oblique grasp of the head: one blade over the temple and the other over the posterior parietal bone. As the head descends, they may be changed to a better position on the sides of the head.

When the head floats and refuses to engage in spite of good pains, there is probably some disproportion in the size of the head and the canal; and the head is partly extended. It is evident that the application of the forceps blades to the sides of such a movable head must be extremely difficult. Most men agree that it is not only almost impossible, but is undesirable. The blades should be applied in the oblique diameters of the pelvis, when there is room for them.

When the head lies in a transverse position, as is often the case, forceps blades placed in position on the sides of the head would shorten the conjugate diameter of the pelvis when this very diameter is probably already too short to allow natural engagement. For this reason it has been the custom to grasp such a head obliquely. A writer in the *American Journal of Obstetrics* for January, 1903, takes exception to the universal application of this rule and describes a method of applying the blades to the sides of the head and delivering successfully.

In median and high forceps operations the condition of the os plays an important part. Care must always be taken to apply the forceps within the os. The cervix must be enough dilated to permit the application of the forceps and allow the passage of the head; for extraction through a firm, partly dilated os results in severe lacerations.

When the head is in the upper part of the canal, and more especially when it has not engaged, extraction with ordinary forceps is difficult and a good deal of force is often necessary. Traction from the handles drags the head against the symphisis and much of the force is wasted. There is also the danger of injury of the soft parts of the mother. In order to exert traction downward in the proper direction, the following method is to be employed: With one hand traction is made from the handles, while the other hand presses downward strongly on the forceps at the lock. In this way the lock acts as a fulcrum and the pull is downward instead of forward against the symphisis.

Extraction of a head high in the pelvis is much facilitated by the use of the axis-traction forceps. With this instrument traction is exerted almost in the axis of the superior strait: less power is needed because very little is wasted in friction against the symphisis. A very good substitute for the Tarnier axis-traction forceps is the axis-traction rods, which can be attached to the ordinary forceps.

In high-forceps operations it is especially important to determine the exact position of the head; and in extraction the mechanism of normal labor must be borne in mind. Flexion and

rotation of the head must not only not be hindered, but must be helped.

The forceps should be reapplied as soon as any change in the position of the head offers a chance for a better grasp.

The essentials for performing a good forceps operation are — ability to make an accurate diagnosis of position, familiarity with the mechanism of labor, deliberation in grasping and extracting the head.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

Clinical Meeting of the Staff, Held at the Treadwell Library, Dec. 12, 1903.

Dr. H. H. A. Beach in the chair.

A CASE OF HYSTERIA.

BY H. C. BALDWIN, M.D.

Up to the age of nineteen Miss M., who is now thirty-eight, had been comparatively strong, and was able to walk and run as well as any one. She had never had fainting spells. She had no trouble with her voice. She had done everything like anybody else.

The winter previous had had some pain in her back. One day when her sister put her hand unexpectedly on the patient's back, the patient collapsed. The family doctor was called, and he put her to bed to rest for a week, telling the family that the patient's back would be well by that time. The patient did not get out of bed at all for three years, and was not even able to be lifted into a reclining chair during this time. After she had been in bed six months, she lost absolutely the power of the right leg, and it became perfectly numb, so that she did not feel when a pin was stuck in it. She also had numbness and paralysis of the right arm. The severe pain in her back continued. For a time she ran a continuous low fever, which ended up with a severe attack of malaria. The numbness continued in the right leg and arm for about a year. She recovered the use of the arm perfectly, but she has never moved the leg since.

She was taken to Philadelphia after she had been in bed three years, and remained there for six months in a private sanatorium, where she was under the care of eminent doctors. She was out of bed but very little for five years, and then began to go round a little with crutches. Her left leg was all right, but her right leg was perfectly useless. She could neither move it nor bear any weight upon it. About four months after she began to get round, she lost her balance and fell down a flight of stairs, striking the back of her head. She was not unconscious, but after falling downstairs, she was in bed for four months. For a long period after this accident she was unable to make any sound at all, and since that time until she came under my care — a period of over thirteen years — she has never been able to speak above a low whisper. Before getting out of bed at all, she was fitted to a brace, and she has worn this brace constantly ever since, and for the last five years, both day and night, until I took it off in October of this year.

The patient came to see me at my office Sept. 16, 1903. Physical examination showed lively reflexes — right and left. There was no marked wasting of the right leg, but the muscles were soft and the joints were apparently relaxed. There was marked toe-drop. Dr. Goldthwait examined her back, and reported there was no trouble with the back. Dr. Goodale examined her throat and reported that there was no trouble with the vocal cords. Through the courtesy of Dr. Minot and Dr. Shattuck I have been allowed to have the care of her while she has been a patient in their wards in the hospital.

I told her that I could teach her to talk by developing head tones in the same way that music teachers develop voices in pupils who have no voices. The usual methods of getting a patient with functional aphonia to speak were of no avail in this case, and the voice has been developed gradually by systematic daily practice. It was a period of two months before the speaking voice was natural and before the patient could talk out loud without concentrating her whole attention on her voice.

The developing of the use of the right leg has been a much more difficult matter. A plaster bandage was put on the knee at first, and the patient was told that the plaster would keep the knee from buckling, and that she would be able to push her leg along. It was at least six weeks before the patient could move her toes the slightest, but she was daily made to stand and to work at walking, her right leg being pushed along while she was held by the nurse and myself. The most difficult task has been to teach her to balance. She had completely lost all power of balancing, and has been much more difficult to teach than a child.

Her brace was removed the last of October, and for a week the patient was most unhappy. Within the last month she has learned to make every motion of her right leg; she can stand alone; she can walk a little alone, and with the aid of a cane can get about pretty well. Yesterday she went up and down a flight of sixteen steps alone.

THYROIDECTOMY FOR EXOPHTHALMIC GOITER.

BY JAMES MARSH JACKSON, M.D.

The first case which I wish to show is the patient with exophthalmic goiter on whom Professor Mikulicz performed thyroidectomy last summer. She first came to the Out-Patient Department Oct. 2, 1901, and was under medical treatment for some time without deriving material benefit. (She is not included in the series of cases treated by bromide of quinine.) The prominent symptoms before operation were exophthalmos, large goiter of both lobes (especially the left) tachycardia (140), tremor, sweating, diarrhea (four to eight movements a day), nervousness and irritability of temper, hoarseness and inability to stay in a hot room.

Examination at that time showed marked prominence of the eyes, but no Stellwag sign. Von Graefe's sign was present. She was able to wrinkle the forehead slightly, and convergence of the eyes was normal. Examination of the throat showed no paralysis of the recurrent laryngeal. The hands were moist and warm; there was marked sweating of the body and considerable tremor of the hands and tongue. The heart was enlarged slightly to the left; first sound at apex loud; second weak; no murmurs. Patient was unable to work, and was sent into the hospital for rest and treatment. Operation was performed by Professor Mikulicz on May 20, 1903. The left lobe of the thyroid was extirpated as a whole and the superior and inferior thyroid arteries were tied, stopping completely the pulsation of the right lobe. For ten days she ran a slight temperature, 99° to 101.5° F., and the pulse 130 and 140 at first, gradually diminished until on the tenth day it was reduced to 68. No change in respiration noted. Recovery otherwise

uneventful. Since operation the following changes have occurred: In the first place the patient feels much better, and has been able to work continuously since leaving the hospital. The pulse rate, according to the records of the Out-Patient Department, has never been above 84, whereas you will remember formerly it was rarely under 130. The heart has diminished in size and is now normal. Eyes: Patient thinks that her eyes were much less prominent after the operation. Von Graefe's sign is now absent. Tremor is less marked but still present. She has gained thirteen and three-fourths pounds since operation. Now has no diarrhea. There has been no change in sweating since the operation; it is still very marked. Irritability of temper decidedly worse since the operation. Now sleeps well, though previously was considerably troubled with insomnia. Headache has been more marked since operation. Hoarseness remains the same. Had a short, hacking cough before operation, none since. Polyuria has been a marked symptom from the beginning, and no change was effected by operation.

Of late patient has noticed that the right lobe of the thyroid has been increasing in size and that the eyes are becoming more prominent. She says, also, that the cough, which has been absent since May, has again returned and is about the same as it was prior to operation. In conclusion I wish to draw attention to the marked improvement which has taken place in her general condition and the particular symptoms of exophthalmos, pulse rate, tremor, diarrhea, insomnia and cough, whereas the following symptoms are either not improved or slightly worse: perspiration, irritability of temper, headache, hoarseness and polyuria. I have recently started her on bromide of quinine, five grains three times a day, and shall watch the effect of this before considering the advisability of another operation.

OBSTRUCTION OF THE SUPERIOR VENA CAVA.

Mrs. M. S., aged thirty-five, married.

Family history: Mother died of heart disease, otherwise negative. Past history: Has always been well and strong, and has borne two children, the last three years ago.

Present illness. On Oct. 22, 1903, patient came to the Out-Patient Department of the Massachusetts General Hospital, complaining that for the past three years she has had more or less shortness of breath, smothering sensation, attacks of palpitation, rush of blood to the head, loss of strength and pain under the sternum. These symptoms have been growing worse of late, and she is now seriously inconvenienced in her work. A year ago, she says, a lump appeared over the right parietal bone, which increased gradually in size until it became as large as an egg. Her doctor incised this, but found no pus, there being only a discharge of dark blood. She was given some medicine, the nature of which she does not know, and the tumor disappeared. This is, of course, suggestive of gumma. Examination of the chest shows a marked dilatation of the superficial veins from mid-sternum to umbilicus. The heart is normal in size and nothing abnormal is made out by auscultation. Percussion over the upper border of the sternum gives a sense of resistance over an area about the size of a silver dollar. The x-ray plate shows a broadening of the upper part of the cardiac shadow. The probability is that we have here a tumor pressing on the superior vena cava in the mediastinum, and as there is a possibility that this is a gumma, she has been given iodide of potash and mercury. As yet no change has been noted from the treatment.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

HAY FEVER ANTITOXIN.

THE recent work of Dunbar[1] of Hamburg in separating a toxin from the pollen of different grasses, from which he has produced an antitoxin for hay fever, may be justly called the most striking laryngological novelty of the year. The author was led to the supposition that flowering grasses had a causative relation to hay fever. By carefully collecting the pollen of different gramineæ he found that when some of this pollen is brought in contact with the conjunctiva or nasal mucous membrane or any other mucous membrane of a hay-fever patient, an itching, tickling and burning will be produced, followed by a vascular injection, swelling and excessive secretion, whereas it is inert in persons who do not suffer from hay fever. The experiments showed great variations in the sensitiveness of different hay-fever patients toward the pollen; it is, however, present in all cases, and the accompanying symptoms correspond to the symptoms observed in many patients in natural hay fever. It is possible that there are persons who do not react to the pollen of grasses, but to pollen of other plants in a similar manner. It is true that some persons suffer from nervous coryza who do not react to the pollen granules of the gramineæ, but the author suggests that the term "hay fever" should be used only in such cases as react. The results of experiments led him to the conclusion that grass pollen granules contain the exciting agent of the disease called hay fever, which is differentiated from other similar affections essentially by the fact that it appears only at one period of the year. The positive conclusion of the causative effect of pollen granules in the production of hay fever led to the inquiry into the chemical or mechanical action of these bodies. The pollen granules of grasses found active had without exception a smooth surface. Products obtained from the pollen granules by the action of alcohol or ether had no specific effect upon hay-fever patients. The pollen granules retained their specific action in full force after the extraction of these substances. The pollen of the gramineæ differs from the pollen of other plants in containing starch granules which entirely fill the body of the pollen. When immersed in water the starch bodies of the pollen appear as rods. When immersed in salt solution these rods often remain unaffected, but when immersed in secretions of mucous membrane, in lachrymal, in nasal or salivary secretions or in blood serum and kept at body heat these starch rods will soon begin to dissolve. If at the moment of complete solution the undissolved portion be separated by centrifugal process, it will be found that it is inert in its effects.

[1] Berl. klin. Woch., 1903, 24, 25, 26. English translation by Joachim, Annals Otol., Rhin. and Laryngol., September.

With the solution hay fever can be produced. The iodine reaction of the starch rods is somewhat atypical, this suggesting a double product containing besides starch an albuminous substance. This albuminous substance was extracted from the pulverized pollen. It reacts to all tests for albumen, contains the entire hay-fever poison, and it is possible to extract it so completely from the pollen granules that the residue is inert. The protein obtained is extremely poisonous to hay-fever patients. After establishing the fact that the pollen of grasses contained the hay-fever poison, experiments were at once begun to obtain a specific antitoxin. It became evident that animals of the same kind differed remarkably in their resistance to the hay-fever poison. Of the horses treated some reacted but feebly to the toxin, others not at all. One horse of blooded stock reacted so violently to a much smaller dose than had been well borne by goats that for days it was doubtful if he would survive. Several horses have been found reacting to the pollen toxin. These when injected with 4 gr. of pollen granules, or with the toxin derived from this amount of pollen, began soon after the subcutaneous injection to show symptoms of disturbance, loss of appetite, muscular twitching, urticaria, rise of temperature. In the blood of susceptible horses antitoxic properties could be discovered after four weeks, four injections having been administered. If a drop of the toxin solution containing $\frac{1}{40}$ mgm. of the protein, which produces severe reactive symptoms in hay-fever patients, be mixed with a drop of the horse serum possessing antitoxic action, it will be found that this mixture, when applied to the mucous membrane of hay-fever patients is no longer productive of irritative reaction. In the course of a few months this antitoxin reaction increases many times. With this serum it is possible to neutralize the pollen toxin as well as to subdue a reactive inflammation previously produced by the application of pollen toxin to mucous membranes of hay-fever patients; larger doses of antitoxin are necessary to overcome already existing irritations than are needed for immediate neutralization of the poison. As a result of the report of cases in which the serum has been used by patients habitually subject to hay fever, the author concludes that a careful prophylactic use of the serum, or its use as soon as the first symptoms of irritation appear, will bring about a surer result, and with a smaller amount of serum, than when used after a severe attack. The use of antitoxin externally is preferable to the subcutaneous use, if it should prove efficient in the control of asthma; subcutaneously antitoxin is entirely inert on normal human beings, while on hay-fever subjects it gives rise to disagreeable symptoms of irritation.

OPERATIONS UPON THE ACCESSORY SINUSES.

For the last few years the surgery of the accessory sinuses has been a subject of especial study, to which Luc has contributed in no small degree. During his recent visit to this country at the time of the Medical Congress in Washington, Luc presented a paper summarizing his present opinions on the radical treatment of chronic suppurations of these cavities.[2] In regard to the maxillary antrum he believes that it is not advisable to adopt the radical operation in any case of chronic abscess without having previously attempted to cure it by washings of the diseased cavity, after a puncture through the inferior meatus. In the radical, commonly known as the Caldwell-Luc operation, after making a wide opening through the canine fossa and cleaning the cavity, an opening is made at the expense of the internal or nasal wall of the sinus, in order to create a wide and permanent communication between the antrum and the nasal fossa. This resection, which requires simultaneous ablation of the greater part of the middle and inferior turbinals, is greatly facilitated by the introduction of the little finger into the nostril. The antro-nasal communication must be a large and permanent one, whereas the antro-buccal one is to last only as long as it is necessary for cleaning and curetting the cavity.

In regard to the frontal sinus the author has found that the so called Ogston-Luc operation has its limitations, and after reviewing the more radical operations of Kuhnt and Jansen, recommends the method of Killian, which is a sort of combination of all three. It implies the immediate closing of the wound and the subsequent drainage by the nose, and it opens the floor of the sinus. It removes the greater part of the anterior wall, but it preserves a bony bridge corresponding to the orbital arcade, which greatly lessens the deformity. He regards this operation as being at present the surest and safest method for radical cure of chronic frontal suppurations in cases made difficult by abnormal dimensions of the cavity and especially by its extension to the temporal region, whereas the Ogston-Luc method, which is easier for the surgeon and less disfiguring to the patient, finds its ideal application in patients with a small sinus.

The most interesting part of the paper is that relating to the ethmoid cells. The middle and even the posterior cells, including the sphenoidal cavity, which may be considered as the most remote of them, are within reach of our eyes and our instruments, but the anterior cells that line the naso-frontal outlet will always escape unless we make a previous resection of bone. A result of experience has been to abandon the use of nasal curettes. He uses a special forceps, whose blades are large enough to seize much at a time and flat enough to be easily thrust into the recesses of the middle meatus. If the nasal fossa is filled with polypi they are removed by means of the cold snare. Under cocaine the middle turbinal is first attacked with the largest flat forceps, squeezing bone, mucosa and polypi, tearing them off with

[2] Trans. Amer. Laryngol. Asso., 1903.

a rapid twisting movement. After checking the hemorrhage with gauze, any myxomatous mass or bony trabeculæ met by the forceps are to be seized till the instrument finds no other resistance than that of the bony walls limiting the nasal cavity. The only wall which the author has involuntarily opened is the anterior wall of the sphenoidal sinus. The method when applied to the ethmoidal suppuration complicating a frontal maxillary empyema can but be considered as a preliminary step to the radical operation for the latter disease, since the Caldwell-Luc as well as the Killian method affords the surgeon every facility for the opening and curetting of the neighboring cells.

The sphenoidal cavity, in a case of chronic empyema, may be approached either through the nose or through the maxillary antrum. When the only difficulty in getting at the sphenoidal front wall is the middle turbinal and the posterior ethmoid cells there can be no simpler method for reaching and opening the sinus than the one described for curetting the ethmoid cells. In case of abnormal resistance of the anterior wall it might be advisable to use a perforator. The coincidence of an antrum empyema with the sphenoidal suppuration makes the antral passage to the sphenoidal sinus the proper one, as being both easier and safer. A resection of the anterior and internal walls of the antrum opens a direct and simple route, which should be chosen even through a normal antrum, if the passage through the nasal cavity is obstructed.

OPERATION FOR DEFLECTED SEPTUM.

Although different operations and modifications of operations for the straightening of deflected septa have increased each year, we seem to be as far as ever from universally accepted methods. The problems are so varied that general rules are difficult. As a result of study and experience Douglass [3] concludes that the theory that the forceps by twisting and bending break the septal cartilage into several fragments enclosed in a layer of mucous membrane is fallacious. What appears to be a lessened elasticity of this cartilage after use of forceps is in almost every case the result either of the incision through the cartilage or its separation from the bony septum. When sections are made of the fractured septum some time after healing it is not found that there has been any attempt at the production of a new cartilaginous tissue. The displaced fragments remain separate, and connective tissue has been formed uniting these fragments. The only way of dealing with the fibrous bands of tissue formed along the line of fracture is by incision, and these incisions should be as few as possible. Incisions intended to correct septal deflections should be made along the entire length of the triangular cartilage. The greatest fallacy in septal work is the belief that it is necessary to make many incisions, especially the crucial incision. Every angle from a cross incision increases the tendency to displacement of the fragments and leaves a tendency to perforation.

An important point is the recognition of the part played by the superior maxillary spine. This spine receives anteriorly the triangular cartilage and posteriorly the anterior edge of the vomer. The septum may be incised, the forceps may break the triangular cartilage from its attachment, the vomer may be fractured and separated from the superior maxillary ridge, but if the cartilage is not separated from the superior maxillary spine the result in many cases will not be good. The relation of the septum to the superior maxillary spine is somewhat analogous to the main sheet of a sail. If this is cut the septum will be found freely mobile and can be placed and retained as desired. So important is this spine that when it has been completely severed it is often unnecessary to make any cut in the septum or to use forceps to break the septum from the ethmoid. After anesthesia the spine may be cut either through the lip or nose. In the former case the lip is raised and the knife plunged to the right or left of the raphe; the chisel is introduced and one finger placed in the nostril to determine the position of the chisel and the spine; the chisel is then gently forced through the bone by light blows. In operating through the nose the incision is made just behind the vestibule on the floor of the nose, where it joins the septum, and the spine is cut by the chisel as before.

PARAFFIN INJECTION.

A review of the reports on the injection of paraffin in addition to his own observations and experiments with animals leads Schleifstein [4] to the following conclusions: Both the harder form of paraffin and that which melts at a lower temperature is well borne by animal tissues. If the skin into which it is injected is too tense there may be destruction of the hair follicles, with loss of the hair, and also the wound made by the needle may not properly heal, or there may be even a sloughing from pressure. This is dependent upon tension and not upon the kind of paraffin used. The injected paraffin is in time penetrated by compact connective tissue, which beyond increasing its bulk does not affect it. Hard paraffin which melts at a high temperature has no special disadvantages and is less liable to give trouble in case the temperature of the body rises. In parts of the body where it is not under accurate control during injection the hardest paraffin should be used, as it is less likely to reach undesired spots and to cause trouble. In cases where the injection may be considered curative it may be used without hesitation, but where its use is purely cosmetic it is not yet possible to be perfectly sure of results. There is sometimes an unexpected development, and the operator should be sure that the patient understands the situation and expresses a wish that it should be tried.

[3] Laryngoscope, April.

[4] Fraenkel's Archiv., xiv, 3.

TREATMENT OF ATROPHIC RHINITIS WITH MUCIN.

A report of advanced cases of atrophic rhinitis treated with mucin is given by Stuart Low.[5] The results are distinctly good. The mucin is given both internally and locally. A solution is made by rubbing up one tabloid and one "soloid" of mucin in 2 dr. of warm lime water and 6 of sterilized water. This solution may be used as a spray. At the beginning of the treatment the patient should be seen daily for a week, and the mucous membrane of the nose cleaned and massaged with mucin solution. The patient is at first to syringe with the solution twice a day, but soon need do so at night only. Internally eight to twelve mucin tabloids are taken daily, both before and after meals. This treatment improves the digestion as well as the local trouble. The solution as given above for local use may be found painful for the patient, in which case it should be diluted.

TREATMENT OF LUPUS OF THE RESPIRATORY MUCOUS MEMBRANE.

Christiansen, in a report to the Danish Oto-Laryngological Association of Copenhagen,[6] states that three-fourths of the patients who apply to the Finsen Light Institute for treatment for lupus of the skin are found to have it also of the mucous membrane. The mucous affection has generally been primary. Lupus is most frequently situated in the foremost part of the nasal cavity, the septum and the vestibule, then on the lips and upper gum. The nodules appear as dark red spots upon a lighter red background; there are also often miliary tubercles and ulcerations. The disease requires a very energetic local treatment. Wherever possible the light is applied as to the skin, by "compress glasses," and is focused upon the spot. The reaction appears as a hyperemia in severe cases with a loss of epithelium, but never as a bulla. The results are almost as good as in the treatment of the skin disease. When the disease is situated where it cannot be reached by the light, the nodule is punctured with the galvano-cautery, care being taken not to burn anything except the nodule. Solutions of iodine, corrosive sublimate 1–1000 and permanganate of potash 1–700 are also used. The use of lactic acid has been found to be valueless. The patient is seen daily and the surface kept free from crusts. For the details of treatment, both with and without the light, the reader is referred to the fuller report.

(To be continued)

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.[1]

J. W. COURTNEY, M.D., SECRETARY.

REGULAR meeting Thursday, Oct. 15, 1903, DR. G. L. WALTON in the chair.

[5] Journ. Laryngol., Rhin. & Otol., April, 1903.
[6] Ibid., October.
[1] The following discussion was received too late for publication with Dr. G. L. Walton's paper. See JOURNAL, Jan. 21, p. 61, 1904.

ORAL COMMUNICATIONS.

DR. E. W. TAYLOR: I have three specimens to present, with brief reference to the clinical histories.

POTT'S DISEASE.

The first is an unusually striking case of Pott's disease occurring in an adult. The patient, a man of forty-five, was taken with typhoid fever. Three weeks after the onset of the typhoid fever he developed Pott's disease. What relation the Pott's disease has to typhoid fever I am not able to state. He was admitted to the Long Island Hospital, and became paraplegic with a large kyphosis in the dorso-lumbar region. During his stay he grew continually worse. Operation was considered, but not attempted. He was transferred to the Carney Hospital, under Dr. Goldthwait's care, who, by assiduous treatment, was able to bring the man to his feet; he later returned to the Long Island Hospital, and died of generalized tuberculosis, particularly of the genito-urinary tract. The autopsy was done by Dr. Magrath, and I present a vertical section made through the spinal column which illustrates extremely well the method by which compression of the cord takes place in Pott's disease associated with paraplegia. You will see on the dorsal surface of the body of the vertebra a tuberculous deposit which has gradually encroached upon the spinal cord, forming a kyphosis at this point which is, in the specimen, not particularly apparent. One body is practically eroded. The cord is pressed upon and virtually destroyed at this point.

DEFECTIVE CEREBRAL DEVELOPMENT.

The other cases I have to report are both instances of defective cerebral development. The first is from the Massachusetts School for Feeble Minded. The brain is extremely interesting, because it shows a tendency to simplification as a whole, without any definite defect in any particular portion. This brain, if presented to any of us, I think, might be regarded as the brain of one of the lower mammalia. The cerebellum extends out behind, the convolutions are small, and yet the brain as a whole shows a very perfect development. This came from an idiot child of four, of Italian parentage, as I remember it, of very feeble mental development; one, I think, of several in the same family. This is a striking and, so far as my knowledge goes, unusual type of brain defect.

The third case is a still more remarkable one in many ways, coming from a child of six, for several years an inmate of Long Island Hospital, suffering from infantile cerebral paralysis. This child was born, I think, of healthy parents. At a very early age he began to show spastic symptoms, and the legs were drawn up and contracted. The development of the child mentally and physically was very much retarded, and for several years he lay at the hospital helpless and apparently hopelessly so. The condition of the brain, however, could not

have been suspected from the clinical phenomena. The more we study these cases the more we find it is impossible to predict what the condition of the brain is going to be, from the clinical phenomena during life. The hemispheres are present but the convolutions are highly defective. On one side is a cyst which is not common. There is a large opening in the occipital lobe which connects with the dilated ventricle. The autopsy was done by Dr. Magrath, and at the time of the autopsy this defect was closed over by membrane which was probably the pia.

DISCUSSION.

DR. G. B. MAGRATH: I remember very well indeed the case to which Dr. Taylor has just referred and the statement as to what the covering-in membrane of this depression was. The opening which existed in that part of the hemisphere was covered in the fresh state by a very thin layer of pia. It was intact at the time of the removal of the calvarium, but was continuous with the remainder of the pia.

SPINAL SYMPTOMS OF BROWN-SEQUARD TYPE.

DR. G. L. WALTON mentioned a case with rather baffling symptoms pointing to the spinal cord. A woman of middle age gave a history of having fallen down a flight of stairs six months ago, after which swelling of the legs appeared and pain in the back, with gradual progressive loss of power and sensation in the lower extremities. It seemed also that after a previous accident she had lost power and had more or less pain. The whole course of the case seemed to show that irrespective of the accidents the whole trouble was a gradually progressive one. There had been one miscarriage, and though no definite specific history was made out, large doses of iodide of potassium were given, in view of the possibility of specific meningomyelitis, but with no result. She now requires morphia for the pain. In view of this history and the patient's desire to have something tried, Dr. Warren will make an exploratory operation in the hope of finding a tumor. The distribution of the paralysis is of an incomplete Brown-Sequard variety, namely, complete loss of power in the left leg, with partial loss of power in the right, loss of pain and temperature sense on the right up to the groin, and loss of muscle sense on both sides. There is an area of hyperesthesia in the right flank and over the left lower ribs. There is exaggeration of the knee jerk and a Babinski on both sides; ankle clonus on the left. The tenth dorsal lamina will first be removed, and operation extended upward if nothing is found at that point. (At the next meeting Dr. Walton reported that although several laminæ were removed and the exploration extended further by the probe, nothing abnormal appeared beyond an unusual spurt of clear fluid upon opening the dura. The cord appeared of normal size, color and consistency. No ill effects followed the operation. There had been slight improvement in the paralysis but no relief of pain.)

DISCUSSION.

DR. P. C. KNAPP: In specific meningomyelitis I have not noticed such striking hyperesthesia as noted in this case, which is more suggestive of something malignant. I have seen such hyperesthesia with malignant disease of the vertebræ.

OBSTETRICAL PALSY: OPERATION.

DR. J. W. COURTNEY: I have here a small boy whom I want to show, not because of the nature of the case, but on account of the ingenious surgical measure that was devised by Drs. Cumston and Cotton for the purpose of relief. The case is an unusually severe one of obstetrical palsy, resulting in a flail-like condition of the right arm. When I first examined the boy, some months ago, I found the extensors of the hand to be the only muscles capable of function. I found also that these muscles had retained their faradic irritability. Now, as extension of the hand was of no practical use to the boy, the surgeons cut nearly all the tendons about the wrist, thrust the upper ends of the severed extensors between the bones of the forearm to its anterior surface, and there sewed them to the lower ends of the flexors. Union was obviously successful, for the boy is now beginning to grasp objects, although with little power as yet. I think, however, that with time his power will grow in this respect.

In connection with this case it is interesting historically to note, although it has no bearing on the boy's condition, that his maternal great-great-grandmother and great-grandmother had goiter, that his maternal grandmother and uncle now have enormous goiters, and that his own mother is developing that disease.

DR. GEORGE L. WALTON read a paper entitled,

THE PREVAILING CONCEPTION OF DEGENERACY AND DEGENERATE, WITH A PLEA FOR INTRODUCING THE SUPPLEMENTARY TERMS, DEVIATION AND DEVIATE.

DISCUSSION.

DR. WALTER CHANNING: I don't know very much about "superior" degenerates. That expression is more or less recent. I have had something to do at times with inferior ones. I fully agree with what the reader has said, and I should certainly approve using either the expression he suggests or some other one in a good many cases where we make use of the ordinary ones of degeneracy or the stigmata of degeneration. I suppose a man like Nordau is largely responsible for the prevalent use of these expressions. There is a popular and scientific way of using them, and I don't know what we can do to interfere with the popular use, but it seems to me scientifically we can do a great deal. It is hard to know what a real stigma of degeneracy is. Many of us have adopted views in regard to the palate, but from recent investigations I have made I

have come more and more to the conclusion that we have so far had very little accurate information about the shape or development or significance of slight deformities of the palate. The results that I have obtained during the last year in regard to the palate corroborate those I have obtained before. There has not been any standard of comparison in estimating what a normal palate should be, except in a very empirical way. During the last year I have had made at the American Museum of Natural History, at New York, under the direction of Dr. Boaz, all the casts of palates I have, and all the casts of school children, the length, width and height measured, and I have had constructed from those measurements what would be regarded as an average palate for a normal school child from the age of six to thirteen. This has not been done before, as far as I know, with regard to the palate. We have constant reference by writers to the significance of slight aberration of the palate. In regard to the palate of the adult we have not any standard of comparison; we do not know what an average palate of the adult is. I had taken, last year, some 200 casts of normal adults to find out what may be a standard of comparison. It is so with regard to many other stigmata of degeneration. We have no standard of comparison, and the observations are of very little value. I am willing to adopt the suggestions of Dr. Walton and do all that is in my power to make the use of the word degeneration less common and less unscientific.

Dr. C. F. Folsom: I have very little to say. I agree with Dr. Walton. When I was in London, about twenty years ago, some of my friends were interested in this subject, and had been for a number of years getting a fashionable hatmaker in London to preserve unusual forms of heads with the names of the people to whom they belonged. The series has never been published and never used except in private. There was every deviation in the form of the skull which Nordau and Lombroso would class as degeneracy, and yet the men were not men who in any sense of the word could be called degenerates. The term degeneration was used by the writers in Morel's time, and most of us are familiar with his classical work in which the term is used with reference to individuals who have reverted to a lower type or to a distant ancestral type and so inferior that one could not fail to recognize them. The term has been widened until, in Nordau's time, Byron and Tolstoi are called degenerates. Dr. Walton's distinction, it seems to me, is an exceedingly important one and important in many ways. In a medico-legal way alienists are very apt to be satisfied in classing a criminal as a degenerate, and when they label him as a degenerate they call him irresponsible, and there is a great deal of confusion of terms and a very uncertain and unscientific classification of criminals. The difficulty Dr. Channing speaks of is practical, and that is, of estimating standards. If we adopt Dr. Walton's term it is not necessary to adopt any standard, because we do not commit ourselves to any theory with regard to capacity or responsibility or anything of the sort in using the word deviate. In using the word degeneration for these individuals who are not in any proper sense degenerates but simply deviates from the ordinary type, we carry with it a sense that degeneration involves lack of capacity, judgment, self-control and self-management, which is a far different case.

Mr. Walter Soren: Really, the only reason why I was asked to come to this meeting was because Dr. Walton feared that the medical brethren might severely attack his paper, and he wanted the support of some layman of whom he could make sure in advance. I have long had the feeling, expressed by Dr. Walton and others, that the public has been led to associate an evil meaning with the terms degenerate and degeneracy. Those of us who are so unfortunate as to dabble in criminology constantly run across it; and it may be that criminologists are primarily responsible for the association in the public mind of moral delinquency with these terms. How inseparable the meaning of wrongdoing is from the word degenerate is frequently apparent in the trials of criminal cases. In the popular estimation a degenerate is synonymous with an unregenerate. For this reason alone, aside from the desirability of a more precise scientific classification, the substitute proposed by Dr. Walton would be very welcome. It would be very helpful to work I am interested in if his suggestion were adopted, and the public became impressed with the idea that a degenerate or deviate is not necessarily a moral delinquent.

Dr. Woods: It struck me that Dr. Walton's new word "deviate" is a very good expression, inasmuch as deviation is to be expected in all attributes, whether physical or mental. If we measure the physical characteristics of mankind — stature or strength, for example — and arrange the measurments in a series, we find that they fall on either side of a common center or mean. As far as investigations have gone into the measurements of mental traits — such, for instance, as Francis Galton has made — it appears that similiar deviations occur. Thus the term "deviate" carries with it the idea that we have something to be expected from the theory of chances. Degeneration, on the other hand, implies something associated with moral baseness, weakness or disease. So it seems to me the term is a very good one, as it provides for a much-needed distinction.

Dr. J. J. Putnam: I have been very much interested in Dr. Walton's paper, and I should entirely agree with him that the condition has become intolerable with regard to the use of the word degeneration. At the same time it certainly has been of a great deal of use in stimulating observation and discussion. I should think the only question in regard to the substitution of the terms deviation and deviate would be whether they really mean enough. As a matter of fact the normal condition is a devia-

tion; in other words, there is no normal. Every individual is a bundle of qualities. There is no normal, and if the people get to using freely the terms deviation and deviate there will soon be no pretence at a norm; everything will be "deviation." We might be stimulated to study slight peculiarities, and the term might lose its meaning and dignity through abuse. On the other hand I believe that the proper popularization of the term deserves encouragement.

(To be continued.)

Recent Literature.

A Textbook of the Practice of Medicine. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Sixth edition, thoroughly revised. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

The sixth edition of this well-known textbook on the practice of medicine contains 1,295 pages. Although much of the material which would naturally have been included in such a book fifteen or twenty years ago is omitted, a number of new subjects have been discussed, among which paratyphoid fever, trypanosomiasis, adiposis dolorosa and amaurotic family idiocy may be mentioned. We are a little surprised that the two latter affections have not found space in earlier editions. The general appearance of the book is as heretofore. We would especially commend two admirable colored plates on the parasite of malaria.

A Surgical Handbook. For the use of Students, Practitioners, House Surgeons and Dressers. By FRANCIS M. CAIRD, M.B., F.R.C.S. (Edin.), Assistant Surgeon, Royal Infirmary, Edinburgh, and CHARLES W. CATHCART, M. B., F.R.C.S. (Eng. and Edin.), Surgeon Royal Infirmary, Edinburgh. With very numerous illustrations. Twelfth edition. London: Charles Griffin & Co., Limited; Chicago: W. T. Keener & Co. 1903.

This little handbook has reached its twelfth edition. On looking it over, we find that the authors have kept the book up to the progress of surgery. The book considers case-taking, treatment of patients before and after operations, anesthetics, general and local, etc.; in fact, all that a surgical dresser needs before beginning a service in the hospital. Besides that, it has in a condensed form the general information that a practitioner would care to turn to in case of necessity. The cuts are very crude but expressive. It is a good book of reference in minor surgery.

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THE ANNUAL REPORT OF HARVARD UNIVERSITY, 1902-3.

THE annual report of Harvard presents, as usual, many data of much general interest, and instructive comments thereon, especially from the president of the university. He points out that the death-rate of the university is remarkably low, being only 4.7 in 1,000 for the 632 members of the governing boards and the university staff. Among the 4,261 students in the university there were 10 deaths, being only 2.34 in 1,000. These figures lead President Eliot to reflect:

"How great a reduction in the death-rate may be hoped for in civilized countries from the development of general intelligence, the progress of medical science, and particularly of preventive medicine, and the enforcement of wholesome conditions of life, may be inferred from a comparison of the above statistics with the following death-rates in 1900 of certain classes of males in the city of Boston:

Males	15–20 years	5.71	per 1000
,,	20–25 ,,	8.13	,, ,,
,,	25–30 ,,	9.79	,, ,,

"The members of Harvard University are more intelligent than the average of the population; with a few exceptions they take advantage of all existing medical knowledge and skill; and they live under more wholesome conditions than those of the people at large. Hence their low death-rate in comparison with that of average men of like ages."

On the other hand, the amount of sickness in some of the departments, and especially in the undergraduate department, as indicated by the

"sign-offs" given in at the department office, which are supposed to state the cause of absence from usual duties, was considerable. Moreover, there was an extraordinary difference in the amount of sickness in the various departments. The students in Harvard College seem to be sick nearly twice as much as the students in the Lawrence Scientific School; and, curiously enough, the special students in these two undergraduate departments are ill much less than the regular students. The students in the college are sick more than ten times as often as the students in the professional schools. The figures given are not taken very seriously and in all probability do not correspond with any real facts. "It is the opinion of the *Medical Visitor* that a large proportion of the 'sign-offs' of undergraduates are uncalled for. The real disease is what soldiers call 'malingering,' which is a moral and not a physical disorder." Attention has been called to this in a previous report.

The Stillman Infirmary was in use during the year 1902–3 for the first time, and is reported as having amply demonstrated its usefulness and the excellence of its appointments. Two hundred twenty-three cases were admitted, of which 146 were discharged well, 74 were discharged relieved. The private-room patients numbered 89 and the ward patients 134. Good progress has been made toward finding means of support for the infirmary, but much remains to be done.

President Eliot states that the exercises most used by the students are gymnasium exercises, lawn tennis, hand-ball and golf. The games in which the public is most interested — namely, football, baseball and rowing — are serviceable to much smaller numbers of students, no one of these three sports serving more than one-sixth of the total number of students who reported the exercises they used. The game which has been conducted at Cambridge with the least intelligence and success is football — except from a pecuniary point of view.

"The breaking up of college work for the individual student by frequent absences to play games at a distance from Cambridge is an evil which ought to be checked. It is a greater evil than formerly, now that intercollegiate games take place all the year round; that is, in winter as well as in spring and autumn."

The dean of the college reports that the tendency at Harvard at the present time to complete the work for the degree of Bachelor of Arts in three years is very strong. Of the class of 1903, with a membership of 381, no less than 146 men completed their academic work in three years. Of these men a few go into business, but by far the greater proportion carry on professional or graduate studies either at Harvard or at other universities. The president considers that, with the present rate of increase, it probably will not be long before the majority of each entering class will obtain the Bachelor's degree in three years. On the other hand, he points out that "the ages at which young men are taking the degrees of Master of Arts, Master of Science and Doctor of Philosophy at Harvard University are still deplorably high. A young man who has come steadily on through all the grades of his education ought to procure the degree of Master of Arts with ease by the time he is twenty-three years old. Of the 94 men who took that degree at Commencement, 1903, 12 were under twenty-three, 16 were twenty-three, and 66 were over twenty-three. Of these 66, 35 were over twenty-eight. The degree of Doctor of Philosophy ought to be easily taken by the age of twenty-five. Last June, of the 28 men who received the degree of Doctor of Philosophy, 2 were under twenty-five, 4 were twenty-five, and 22 were over twenty-five. More than half the candidates were over twenty-eight. These figures show how irregular, broken and often belated the higher education of young Americans in arts and sciences still is. The candidates for these degrees, as the dean of the Graduate School points out (p. 139), are often men who come to the university for a year or more of study after having been for several years engaged in active pursuits."

The year 1902–3 is reported as having been for the Medical School a very interesting, but financially a bad one. A considerable deficit is stated to have been due in part to the progressive reduction of the number of students caused by the requirement of a degree for admission. The plans and estimates for the new buildings of the school were completed, the contracts were signed and construction is now well under way. Moreover, transactions were concluded with the trustees of several hospitals for their occupancy of portions of the large tract of new land belonging to the school. One urgent need of the Medical School — a dormitory with a common-room and restaurant attached — has not yet been provided for. Although the number of students has temporarily diminished, the activity and variety in medical

and surgical research has increased. A tentative schedule has been adopted for an elective fourth year. The "block" system of instruction continues under trial.

The dean reports that "the comparison of scholarship attained by the different classes since the requirement of a degree for admission has been in force proves the wisdom of the step taken — so far as the qualifications of the future graduate are concerned.

"The increase in the number of men taking graduate courses was very marked, the receipts being double that of the previous year, and the number of graduates attending the courses showed an increase of 64%. The summer courses showed also a decided gain in the number of students and of the courses taken."

During the year no less than four professors in the Medical School resigned: Professor Draper of the Department of Legal Medicine, Professor Wadsworth of the Department of Ophthalmology, Professor Porter of the Department of Surgery and Professor Dexter of the Department of Anatomy.

The Dental School stands greatly in need of an endowment, and as it also has raised its standard of admission its ability to meet expenses from receipts is likely to be further curtailed.

THE ETIOLOGY AND PATHOGENESIS OF PANCREATIC LITHIASIS.

PANCREATIC lithiasis being far less frequent than the hepatic or urinary forms, statistics are wanting for this reason so that it is difficult to say whether or not calculi of the pancreas are more infrequent in the male or children than in the female, as is the case with biliary lithiasis. The time of life at which this affection appears and whether climate has any influence in its production are as yet unsettled questions, and all that can be said is that the pancreatic calculus often coincides with other lithiases in the same individual, and from this fact it is quite probable that it has the same etiology.

Pancreatic lithiasis consequently belongs to that vast group of affections united under the name of arthritism. In point of fact direct and homogenous heredity of lithiasis is infrequent, but one often notes the pathological antecedents of calculous subjects, such as gout, rheumatism, obesity, asthma, biliary or urinary lithiasis, certain chronic dermatoses, migraine or hemorrhoids. All these affections are associated, succeed or substitute each other in the same families or in the same subject with such frequency that a general cause has been attributed to them. This general cause is due to a permanent hereditary disturbance of nutrition, giving rise to tardy oxidation, delay in the nutritive changes and uricemia. A sedentary life and also an excessive amount of food appear to play the *rôle* of predisposing causes in the formation of pancreatic calculi. Perhaps one might also add a generalized arteriosclerosis.

The afferent cause of pancreatic lithiasis in no way differs from that of biliary calculi. The pathologically changed pancreatic structures without doubt also contribute to the precipitation of the salts contained in the pancreatic juice and thus tend to form foreign bodies.

The various changes which are the starting point of calculi formation are both external and internal. Among the former we would mention neoplasms compressing the pancreatic ducts, such as primary or secondary carcinoma, fibroids or cysts. The internal lesions are those producing stricture of the ducts either of an inflammatory or neoplastic nature. We could also add as a cause an obstruction of the canal of Wirsung at its distal end.

All these different conditions favor the precipitation of the pancreatic salts and finally give rise to the formation of stones in varying number and size, but which do not necessarily have a central nucleus, as do those arising in the urinary tract, or gall bladder.

Other causes of pancreatic lithiasis have been put forward; one of the principal ones being direct infection of the pancreatic ducts from the digestive tract, as is the case of the gall bladder, or infection of the vessels of the gland by toxins manufactured during one of the infectious diseases.

The experiments of Duclaux have shown that in a normal state the pancreatic juice is aseptic. Now should its chemical composition become altered or should its free exit become hindered from narrowing of the ducts, the pancreatic juice becomes changed; it has become an excellent soil for the development and growth of pyogenic bacteria. Its component salts are precipitated and are the starting point for the formation of more or less voluminous calculi.

The toxins elaborated during infectious diseases, typhoid fever among others, act in the same fashion; so also do foci of suppuration in the neighborhood of the pancreas. These are causes which, by producing epithelial or fibrous pancreatites, set up inflammatory processes in

the canaliculi and ducts of the gland, and these, by the various changes produced in the pancreatic juice, engender lithiasis. One may admit that, in the case of the pancreas, there is infection of the excretory ducts, an angiopancreatitis, just as there is an angiocholitis or pyelonephritis.

The question now arises, Is it microbic infection or the diathesis of the subject which dominates the pathogenesis of pancreatic lithiasis? An answer to this may be sought thus: If typhoid intestinal catarrh propagated to the bile ducts becomes a lithogenous catarrh, if, in other words, the bacillus of typhoid is capable of producing biliary lithiasis, the question relative to the pancreas is a settled one. It remains to establish what other bacteria play such a part, other than the specific agent of typhoid. It is quite possible for any bacteria pullulating in the mucus of the bile ducts and gall bladder to set up chemical changes leading to a deposit of the mineral constituents of the bile. Consequently biliary lithiasis results from the manner of penetration of bacteria into the ducts and gall bladder, their number and especially the composition of the mucus. Should the latter hypothesis express the reality, the soil would be more important than the seed; biliary lithiasis would no longer be an accidental phenomenon, but would remain the expression of a previous condition of the organism, of an hereditary or congenital modification *totius substantiæ*, a diathesis. Pancreatic lithiasis should not, we think, form an exception to the rule, since it belongs to the same pathological family.

A STUDY OF RINDERPEST IN THE PHILIPPINE ISLANDS.

A PRELIMINARY report on the study of rinderpest of cattle and carabao in the Philippine Islands from the Serum Laboratory of the Bureau of Government Laboratories, published under the auspices of the Department of the Interior, is at hand. This report from the pen of Dr. James W. Jobling, director of the laboratory, concerns itself particularly with information regarding the disease for the benefit of cattle shippers and breeders, giving the symptoms, means of prevention and treatment of the affection.

It appears that the disease, rinderpest, dates back almost to the Christian era, when an epidemic was described which bears a close resemblance to those later observed. Rinderpest has led to the death of several million cattle in Europe alone, the disease usually appearing in the form of epidemics. In 1708 the affection was prevalent in Russia, whence it spread to all parts of Europe, leading to an enormous death-rate among the cattle attacked. Apparently the disease first appeared in the Philippine Islands in 1882, and since then has extended to most of the islands of the archipelago, with a loss among cattle and carabao estimated by some as 90%.

The actual cause of the disease is not known, but by analogy it is fair to assume that a microörganism is ultimately responsible. Transmission is usually by infected ground rather than by atmosphere or running water. The danger apparently lies in careless disposition of the objects which have come in contact with sick animals. Carcasses of animals are also liable to spread the infection as well as the hides. The danger to cattle shippers lies in transporting animals in vessels which previously have been used in the transportation of diseased animals. Experimentally it has been shown that the injection of 0.1 cc. of blood from a sick animal is sufficient to reproduce the disease. In general, experience shows that if the precaution were general of isolating animals sick with the disease the danger of infection would be very greatly reduced.

The incubation period is from six to ten days. There is a preliminary rise of temperature; a disinclination on the part of the animal to take food; infection of mucous membrane of the eye, with a slight watery discharge; increased discharge of mucus from the nose; evidence of great thirst and general apathy. The animal ultimately becomes greatly prostrated, weaker and finally dies, with an increase of the symptoms noted, in a period of from two to ten days from the first rise of temperature. Postmortem the tissues show various forms of inflammatory change, together with distinct alterations in the intestinal tract. Peyer's patches are often enlarged, but apparently never ulcerated.

Practical suggestions are given in the pamphlet before us regarding measures of prevention, which consist essentially of complete isolation of the diseased animal, together with directions as to the disposal of animals dead of the disease. The hides, if preserved at all, should be thoroughly disinfected. Investigation is progressing regarding immunization by various methods, some of which are encouraging. Regarding immediate treatment, it may be said that up to the present time no treat-

ment has proved of any benefit when once an animal has contracted the disease. Various experiments made at the laboratory bear out this observation previously made by others. It is, therefore eminently desirable that prevention should be thorough and as complete as possible. In conclusion Dr. Jobling makes the following pertinent statement:

As no treatment has any effect upon the course of rinderpest, and as it has been proven that an animal which has been inoculated and has shown a good reaction seldom contracts the disease, it is evident that it is not only necessary to inoculate all the animals now in the Philippine Islands but also those to be imported. By this means it will be possible to completely remove rinderpest from the islands, but if such precautions are not taken, it will continue indefinitely, spreading from one point to another, killing off a large percentage of the young animals, and so working a continual hardship on the people.

We have no doubt that this disease will yield to the investigations which are now being made and which, no doubt, will be still more thoroughly carried out in the future.

ANTITOXIN: THE COST OF ITS PRODUCTION.

IN view of our statement (Jan. 28) "that under existing circumstances it would seem as if Massachusetts had no immediate reason to regret her arrangements for making her own serum," and in view of several articles which have recently appeared in different medical journals during the present season relative to the price of antitoxin as sold to consumers throughout the country, we have obtained from the Massachusetts Board of Health the following figures relative to the cost of production during the four years ended March 30, 1903. The production and output of diphtheria antitoxin depends largely upon the prevalence of diphtheria from year to year. For example, the total number of reported cases of diphtheria in Massachusetts in these four years was 36,604 and the mean annual number was consequently 9,151. The maximum number was 12,641, in 1900, and the minimum 7,134, in 1899. The number of bottles of antitoxin produced and distributed in the four years was 159,072, the maximum being 53,389 bottles, in 1900, and the minimum 31,997, in 1899, the average number distributed for each reported case being a little more than four bottles.

The statement that a considerable percentage of bottles is returned to private producers unused (to be replaced by them with a fresh product) applies equally to the State board's product, since unused packages are returned to the office of the board, after becoming inert in the hands of local boards of health. This fact would probably reduce the actual consumption per case to less than four bottles each.

The product produced and issued by the State board during those four years has been put up in small bottles, each containing 1,500 units of antitoxin, the quantity varying slightly from $3\frac{1}{4}$ to $4\frac{3}{4}$ cc., according to the strength of the product prepared. It has given uniform satisfaction to physicians and boards of health throughout the State, as to the quality of the product and the results obtained from its use. The cost of production during these four years was $31,543 for the 53,389 bottles, or 19.8 cents each. Since a package of this strength and size is not mentioned in the advertised statements of manufacturers, an exact comparison cannot be made. It is safe to call the retail price of a similar article at least $2.75, at which price the cost to the people of the State would not have been less than $437,438 for the four years. A saving of $405,905 was therefore effected to the commonwealth by this method of production. It is proper to say that the Board of Health enjoys some advantages for economical production which a commercial house would not have. The effect of this, however, upon the cost must be small.

MEDICAL NOTES.

SMALLPOX IN PHILADELPHIA. — Smallpox in Philadelphia is showing a tendency to decrease. There are still, however, each week a very considerable number of new cases, and deaths continue to occur. It has been ordered that visitors to the Philadelphia Hospital must either show satisfactory evidence of vaccination or else be vaccinated before entering the wards. Inmates must be vaccinated before visiting relatives in the city. These somewhat stringent measures are adopted to prevent the spread of the disease to the 5,000 inmates of the hospital.

DEATH OF DR. E. A. DE SCHWEINITZ. — Dr. E. A. de Schweinitz, chief of division in the Agricultural Department of the Government, died in Washington, Feb. 15. He was born in Salem, N. C., Jan. 18, 1866, and later was graduated from the University of North Carolina. He received the degree of Ph.D. from

Göttingen, and M.D. from Columbian University. He had attained a high rank as a chemist, and had published papers of value on bacteriological topics. For several years past he had been dean of the Medical Department of the Columbian University.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Feb. 17, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 41, scarlatina 28, typhoid fever 12, measles 240, smallpox 0.

Measles in Connecticut. — According to the monthly bulletin of the Connecticut State Board of Health, measles is prevailing as an epidemic in many towns of that state. Dr. Lindsley in his report considers the spread of the disease as in a measure due to a certain misunderstanding of the town regulation on the part of health officers. This regulation states that all cases of diphtheria and primary cases of measles shall be quarantined in such manner as the health officer may direct. Neglect of this rule has apparently led to the spread of the disease.

Annual Meeting. — The annual meeting of the Boston City Hospital Alumni Association was held on the 10th of February. The hospital was open to the graduates during the day, and a luncheon was given by the trustees at one o'clock.

The business meeting was held at Young's Hotel at six o'clock and at seven one hundred and twenty-four men sat down to dinner. Dr. Charles P. Bancroft of Concord, N. H., presided.

Speeches were made by Dr. Francis S. Watson, who spoke very beautifully of the late Dr. William Ingalls, for many years a surgeon to the hospital; Mr. Edmund Codman for the trustees; Mr. Moses of the New Hampshire Forestry Commission; Mr. Lyford, naval officer of the Port of Boston; Mr. Leach, president of the Brown Alumni; Dr. John G. Blake and Dr. Cheever. Dr. Paul Thorndike and Dr. J. Bapst Blake delighted the alumni with a humorous song.

Copies of a new catalogue were given to the members.

NEW YORK.

Address on Pancreatic Disease. — In assuming the duties of president of the Medical Association of the Greater City of New York Dr. Thomas E. Satterthwaite delivered an address, the greater portion of which was devoted to a consideration of pancreatic diseases and their treatment. This was by way of introduction to a general discussion on this subject, which was participated in by Drs. John C. Hemmeter of the University of Maryland, Richard M. Pearce of the Albany Medical College, George P. Müller of the University of Pennsylvania, Charles G. Stockton of the University of Buffalo, Glentworth R. Butler of Brooklyn and John B. Deaver of Philadelphia.

College of Pharmacy and Columbia University. — Arrangements have been made, subject to the approval of the college authorities, for uniting the New York College of Pharmacy with Columbia University. Nicholas Murray Butler, president of Columbia, has been nominated as president of the college by the trustees of that institution, and Prof. Charles F. Chandler, now president of the college, as first vice-president. Several years ago proposals by the College of Pharmacy to unite with Columbia had no result, but recently the university has determined that some provision for the teaching of pharmacy must be made in its educational system. The nominations for second and third vice-presidents respectively are William Jay Schieffelin and Herbert D. Robbins, both well-known members of large manufacturing drug houses.

A Tribute to Dr. Darlington. — In his address, on Feb. 8, on retiring from the presidency of the Medical Association of the Greater City of New York, Dr. Andrew H. Smith referred to the appointment of Dr. Darlington (one of the charter members of the association) as president of the board of health in the following words: "For the first time since its organization the health department has a medical man at its head. The insanity of our lawmakers, that in express terms forbade that this should ever be the case, experienced a lucid interval at the moment when the new city charter was under revision, and now at last it is recognized that knowledge of the laws of health does not unfit a man to be president of the health board, even as a knowledge of law does not disqualify a man for the bench, nor familiarity with finance for the presidency of the Chamber of Commerce. I am sure that I express the sentiment of this association in felicitating the city on the one hand and Dr. Darlington on the other."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 6, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,580	438	22.95	22.89	3.90	3.08	1.51
Chicago . . .	2,021,086	596	162	18.12	25.33	2.01	2.18	1.00
Philadelphia .	1,407,968	623	174	24.39	21.66	2.25	3.05	1.28
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	216	55	26.85	15.74	2.78	3.70	.93
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	150	—	24.66	22.66	4.00	4.67	.67
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	62	20	9.04	22.60	—	1.13	1.13
Boston . . .	617,950	197	47	16.75	19.29	1.52	1.00	.50
Worcester . .	136,925	31	11	6.45	16.13	—	—	—
Fall River . .	119,349	47	17	21.27	17.01	2.13	2.13	2.13
Lowell . . .	104,402	26	8	7.70	23.10	—	—	—
Cambridge .	100,998	38	6	26.31	13.15	—	—	2.63
Lynn	73,875	20	3	10.00	—	—	—	—
Lawrence . .	72,348	—	—	—	—	—	—	—
Springfield .	72,020	8	—	25.00	—	—	—	—
Somerville .	70,413	28	9	17.85	14.28	3.57	—	3.57
New Bedford	68,863	22	2	22.72	13.63	—	—	—
Holyoke . . .	50,538	10	4	40.00	10.00	—	—	—
Brockton . .	46,601	13	3	15.40	—	—	—	—
Newton . . .	39,310	10	3	—	10.00	—	—	—
Haverhill . .	39,061	11	4	—	9.09	—	—	—
Malden . . .	37,205	14	1	14.28	35.70	—	—	—
Salem	37,188	8	2	12.50	25.00	—	—	—
Chelsea . . .	36,499	13	4	7.70	—	—	—	—
Fitchburg . .	36,335	7	2	14.30	28.60	—	—	—
Taunton . . .	34,577	10	3	—	30.00	—	—	—
Everett . . .	30,299	4	2	50.00	—	—	—	25.00
North Adams	29,201	12	3	41.65	16.67	16.67	—	16.67
Quincy . . .	26,798	1	1	—	—	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	3	—	—	33.33	—	—	—
Brookline . .	25,576	5	—	—	40.00	—	—	—
Pittsfield . .	22,870	2	—	100.00	—	—	—	—
Medford . .	21,956	5	—	—	20.00	—	—	—
Chicopee . .	21,692	7	2	—	14.30	—	—	—
Northampton	20,314	2	2	—	—	—	—	—
Beverly . . .	15,807	8	1	12.50	12.50	12.50	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	2	—	—	50.00	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	6	3	—	83.35	—	—	—
Newburyport	14,478	4	0	—	50.00	—	—	—
Woburn . . .	14,315	3	—	—	—	—	—	—
Melrose . . .	13,819	5	—	—	20.00	—	—	—
Westfield . .	13,809	6	1	—	33.33	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	5	0	—	20.00	—	—	—
Revere . . .	13,609	3	—	33.33	—	33.33	—	—
Framingham	12,574	4	—	25.00	25.00	—	—	—
Peabody . . .	12,406	2	—	—	—	—	—	—
Gardner . . .	12,324	5	2	20.00	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	3	1	—	—	—	—	—
Weymouth .	11,350	5	2	—	20.00	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,852; under five years of age, 998; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 823, acute lung diseases 844, consumption 404, scarlet fever 48, whooping cough 10, cerebrospinal meningitis 12, smallpox 17, erysipelas 22, puerperal fever 13, measles 30, typhoid fever 42, diarrheal diseases 100, diphtheria and croup 108.

From whooping cough, New York 3, Philadelphia 4, Pittsburg 2, Boston 1. From smallpox, Philadelphia 16, Pittsburg 1. From cerebrospinal meningitis, New York 6, Baltimore 1, Boston 1, Fall River 1, Lynn 1, Brockton 1, Gardner 1. From erysipelas, New York 7, Chicago 3, Philadelphia 5, Baltimore 2, Providence 1, Boston 2, Springfield 1, Pittsfield 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending Jan. 23, the death-rate was 18.1. Deaths reported, 5,304; acute diseases of the respiratory organs (London) 208, whooping cough 121, diphtheria 64, measles 114, smallpox 1, scarlet fever 36.

The death-rate ranged from 2.3 in Kings Norton, to 39.4 in Merthyr Tydfil; London 17.4, West Ham 22.6, Brighton 17.3, Southampton 14.8, Plymouth 17.8, Bristol 19.3, Birmingham 18.4, Leicester 12.6, Nottingham 21.4, Liverpool 22.8, Bolton 21.7, Manchester 20.6, Salford 20.7, Bradford 17.0, Leeds 20.3, Hull 17.3, Cardiff 18.3, Rhondda 20.5, Barrow-in-Furnace 8.7, Wigan 23.2.

METEOROLOGICAL RECORD.

For the week ending Feb. 6, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 31	30.04	31	39	23	76	86	81	S W	S	10	9	C.	O.	0
M.. 1	29.43	24	39	10	98	51	74	E	N W	2	26	G.	O.	.03
T.. 2	30.04	20	34	6	50	71	62	W	S	8	6	C.	O	0
W.. 3	30.06	26	35	17	52	41	46	W	S W	18	7	C.	C.	.02
T.. 4	30.22	16	21	11	69	37	53	W	W	12	19	C.	C.	0
F.. 5	30.19	18	25	11	84	70	62	S W	W	14	5	O.	C.	0
S.. 6	29.94	22	29	15	94	77	86	S E	N	8	5	N.	O.	.33
☞	29.99		32	13			66							.38

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

DELAYED PUBLICATION.—The continued strike among printers and pressmen is responsible for delays in issuing the JOURNAL.

RECENT DEATHS.

H. LYLE SMITH, M.D., of Hudson, N.Y., died on Feb. 11, in his sixtieth year.

AUGUST KREHBIEL, M.D., a retired physician of New York, died on Feb. 11, in his sixty-fifth year. He was graduated from the University of Würzburg in 1864.

CHARLES AUGUSTUS WHEELER, M.D., M.M.S.S., of Leominster, died Feb. 11, 1904, aged sixty-seven years.

EXAMINATIONS FOR ARMY MEDICAL SERVICE.

THE examination of applicants for appointment as Assistant Surgeon in the United States Army will be resumed in Washington immediately after the close of the present session of the Army Medical School; it will embrace the full examination (as heretofore), at the conclusion of which those found qualified will be commissioned. Full information as to the requisite qualifications for appearance for examination, method of application, nature and scope of examination, etc., may be obtained upon application to the Surgeon-General U. S. Army, Washington, D.C. The examining board will probably reassemble about the middle of April next, and those desiring to present themselves before the board should make application at once. Applicants are restricted in age to thirty years, and one year's hospital experience or its equivalent in private practice is required.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the American Dermatological Association at its Twenty-seventh Annual Meeting held in Washington, D. C., May 12, 13 and 14, 1903, in connection with the Sixth Triennial Session of the Congress of American Physicians and Surgeons.

Leprosy in the Hawaiian Islands. By Judson Daland, M.D. Reprint.

The Complete Medical Pocket-Formulary and Physician's Vade-mecum. By J. C. Wilson, A.M., M.D. Third Revised Edition. Philadelphia: J. B. Lippincott Co.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and Other Topics of Interest to Students and Practitioners. By leading members of the Medical Profession throughout the World. Edited by A. O. J. Kelly, A.M., M.D., with the collaboration of twelve others. With regular correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels, and Carlsbad. Vol. IV. Thirteenth Series, 1904. Philadelphia: J. B. Lippincott Co.

Rabies. Its Place amongst Germ-Diseases, and its Origin in the Animal Kingdom. By David Sime, M.D. Cambridge: The University Press. 1903.

Original Articles.

THE GENERAL MANAGEMENT OF DIABETES.[1]

BY FREDERICK C. SHATTUCK, M.D., BOSTON,
Jackson Professor Clinical Medicine, Harvard Medical School.

ALTHOUGH pathological knowledge affords the best basis of therapy it is not always the sole basis. We cured malaria long before we knew its cause. Syphilis was controlled long before bacteriology was born, and all that we know of the cause of syphilis to-day is that it must be dependent upon some form of living organism having the power of indefinite reproduction.

When we use the term diabetes mellitus let us clearly grasp the fact that we speak probably of a symptom rather than a disease; that the presence of sugar in the urine means a greater or less impairment, temporary or permanent, of the power of the organism to consume sugar; that while our knowledge of the starting point of such impairment is very imperfect, we have good reason for believing it may be as widely separated as Langerhans' islands in the pancreas, the liver, or several portions of the central nervous system; that during life, at least, we can rarely determine the point of origin in a given case.

Useful as the term glycosuria may be for clinical purposes as denoting the milder grades of the condition, in these brief remarks I shall, for simplicity's sake, include all grades of the failure to burn sugar under the term diabetes. Although we treat a condition and a patient, not a disease and a patient, treatment may be of much value, resulting in prolongation of life and promotion of comfort, sometimes in absolute cure. The means to the end are diet and mode of life, the *rôle* of drugs being, as I am sure my friend Dr. Thomson will agree, a subordinate one.

Prevention, being the highest form of medicine, comes justly first. What can we do to prevent diabetes? Very little. Human life in civilized regions unavoidably tends to become more complex, the struggle for existence fiercer, competition of all kinds, but especially among brain workers, more keen; and we must recognize nerve overstrain as one of the predisposing causes of diabetes. Even if it were practicable and wise to make periodical tests of the sugar-burning capacity of all our adult patients in active life, how many would heed the danger signal of sugar in the urine after the ingestion of a hundred grams of sugar fasting? Some even of the godly say, "Tush! there shall no harm happen unto me," showing an attitude of mind possibly more conducive to happiness and comfort in life than that of Martha, "careful in many things."

I have in mind a man approaching middle age whose great-grandmother, grandmother and mother all died of diabetes, and whose own urine has been saccharine. With such an inheritance it is fairly in place to examine the sugar combustion power of such members of the family as we can, and to enjoin a careful life as to diet and strain. Until we know far more than at present, I do not see much more we can do in either special or general prophylaxis.

Time does not permit, even if the occasion demanded, much detail; and I propose, therefore, to deal mainly with the principles which, as it seems to me, should guide us in the management of our diabetic patients. A diabetic who consults us and has not been treated should, I think, be told to collect his twenty-four hour urine for, say, three successive days, without change in either diet or mode of life, the amount of urine and sugar being important factors in the estimation of the gravity of the case. If, on the other hand, the patient is under rational treatment which has reduced or done away with his sugar it is rarely desirable to let down the bars, as experience shows that sugar production is in many cases more easily controlled the first than on subsequent attempts. In general, with the exception of cases which are evidently very mild or severe in type it seems to me wiser to enforce an absolute or nearly absolute diet at once, — just as it is more humane to complete the shortening of a dog's tail at one rather than in successive operations. The very mild case probably does not require great restrictions. If acetone and diacetic acid are present a radical and rapid change in diet is dangerous. The striking improvement in strength, weight, and general symptoms which we so often see rewards the patient for his self-denial, and thus encourages him to persevere.

So wide is the variation between the different cases of diabetes, and so emphatically do we treat the patient, the more we individualize our patients, applying general principles to special cases, the better results shall we have. The diet list should be adapted to each case. I do not like the printed lists disinterestedly furnished us by some of the manufacturers of food products. They encourage laziness and routine — those two cardinal vices. Moreover, quantity is only next in importance to quality in the food of a diabetic. An approximate adjustment of the amount of food to the requirements of the special case must be aimed at. The body weight should be noted at stated intervals, weekly during the earlier part of treatment, at longer intervals later and in the more favorable cases. I doubt the wisdom or necessity in most cases of such accuracy as some of the modern German writers seem to enjoin; and yet, although it may not be essential for the patient to provide himself with scales and weigh out his portions, nor to dine in scales like Dr. Sanctorius of old, he should be given a rough idea of the size of a given weight of bread, meat, and fat. An increase in the amount of fatty food may be of importance nearly comparable to that of a diminution of starch.

The weight of the patient, his general symp-

[1] Read before the Medical Society of the State of New York at its Annual Meeting, Albany, Jan. 26, 1904. Symposium on Diabetes.

toms or their lack, and the condition of the urine, taken together, will generally prove safe guides as to the judiciousness of the diet. Under a strict diet the sugar and polyuria, one or both, are practically sure to diminish, and may disappear. In a favorable case I expect to see the sugar disappear in two or three weeks, the weight increasing. How long a strict diet is to be maintained must depend upon the type of the disease, which, again, largely depends upon the age and nutrition of the patient. In milder cases I believe it to be wiser to keep the patient on a strict diet for one to two months, and then to test the tolerance for starch, giving first 2 or 3 oz. of bread daily and increasing the amount weekly as toleration warrants. In more severe cases which are rendered sugar free with difficulty one must be more careful in allowing bread, and watch its effect even more closely. In the severest cases, in which the diet does not cause the sugar to disappear, it is ordinarily better to allow a fixed amount of bread. It is certainly so if under the strict diet weight and strength fall off. The sugar is then made from the nitrogenous food or the body tissues and the danger of acid intoxication is increased.

A diabetic who loses weight does so for one of three reasons: His diet is not strict enough; or it is too strict; or, finally, the case is a hopeless one. Every case is a law unto itself. Severe diabetes is not a disease for a lazy doctor to treat, or for a careless or willful patient to well endure.

As I have grown older I find that I have more and more discarded the use of diabetic breads. No diabetic bread which is palatable for any length of time is safe. We must always reckon with human greed for gold, and I much prefer to give ordinary or perhaps graham bread, the percentage of sugar-forming material in which is known, than to run the chance of deluding myself and my patients. I once visited incognito the agency of a well-known company which purveys for diabetics. "Have you bread for diabetics?" "Yes." "How much starch does it contain?" "None." "What! No starch?" "None!" My friend, Professor Wood, however, said the bread contained 60% of sugar-forming material. Gluten flour from another manufacturer had a low sugar-forming percentage one year and a high one the next.

If alcohol is considered desirable it is best given in the form of whiskey or brandy, a brut champagne, Moselle wine, or one of the California hocks, some of which contain practically no sugar.

I have never used the skimmed-milk cure as advocated by Donkin. To remove the fat and leave the sugar does not seem consistent with common sense. I concede that it has worked well in some cases, but wonder if the explanation does not lie in the fact that these patients had been eating far too much and would have done equally well under a diet judiciously restricted in quantity as well as quality.

A day of starvation once every two or three months is very useful in some cases. Austin Flint's plan of keeping a patient in bed from Saturday night until Monday morning, fasting, has seemed to me a good one. If hunger is felt a little beef tea may be a comfort without really invalidating the fast.

The bowels should always receive careful attention. All the more so if acetone and diacetic acid reactions are present in the urine. The skin also should not be neglected. Hot or vapor baths at home followed by active friction, a Turkish or Russian bath at a well-managed establishment, if the general state of the patient permits, are useful adjuvants, especially if the skin be harsh, dry, and inactive. Ralfe thinks he has succeeded in preventing impending coma by the hot bath. In milder cases, with the skin still relatively active, the tonic effect of a daily cool or cold bath, provided that reaction be prompt, thorough, and maintained, is of service. Diabetics are sensitive to cold, and wool or silk underclothing of light or moderate weight is usually desirable. I think we generally err in this country in the colder season by wearing too heavy underclothing. We keep our houses at summer temperature, and voluntarily load ourselves with clothing which we would think justified revolution if a czar compelled its adoption. A diabetic should have several overcoats of varying thickness and warmth, and can scarcely be too well wrapped up while driving in an open carriage, the only form of conveyance really fit to drive in except in stormy weather.

Worry and anxiety are to be avoided as far as possible. Such avoidance is — alas! — only too often easier to enjoin than to secure; but we must do our best. The man of large affairs and responsibility must be helped to systematize his work, to throw every possible detail on subordinates, and to shorten his working hours. How many of us inspect the down-town offices of our patients in active business in order to remedy defects of light, ventilation, and heating of the apartments where more time is passed than anywhere save in the bedroom? In many cases the sum of small advantages forms a large aggregate, and sunshine and open fires are better classed among the greater than the small advantages. In a word, we are dealing with a class of people whose resistance and vitality are more or less diminished; in many of whom, we have reason to believe, the nervous system is especially at fault. The desirability of moderating nerve strain is therefore obvious.

Muscular exercise is useful directly, in that it burns sugar; indirectly, in that it aids blood and lymph circulation. It is therefore peculiarly adapted to diabetics, provided that thought and intelligence govern its use. In excess it is potent for harm. Outdoor exercise is far better than in any confined space, if the condition and circumstances of the patient permit. As to the form — walking, golf, tennis, horseback — it must depend upon the purse

and taste. We are all so constituted that what we enjoy is, on the chances, better tolerated than what we dislike. Calisthenics and the various forms and degrees of massage, carefully adapted to the individual patient, are for the severer cases. Patients debilitated from any cause rightly ask direction as to the amount of exercise they can take. If the intelligent co-operation of the patient can be secured, better results will follow, even in sanitarium treatment; and most diabetics are not, and cannot be, under constant supervision. The best rule I have been able to formulate is the following: The patient is told, "You exercise; you feel tired; you rest an hour and fatigue passes. That fatigue was physiological, healthy, beneficial. If, on the other hand, after you rest you are still tired, you have done too much."

A change of climate during our Northern winter, with all that such change carries with it in freedom from care and in the ability to be in the open air, may be of great importance.

I am painfully conscious of the sketchiness of these remarks, but try to derive some consolation from the thought that, after all is said, is not he the best practitioner of medicine who, reasonable diagnostic acumen being assumed, at the expense of his own gray matter most skillfully adapts general principles to the particular needs and circumstances of the special case? In passing it occurs to me to add that, unless my experience has been exceptional, it is unusual to observe a case of diabetes from start to finish. The very rapid cases are not very common. Others co-operate heartily for a time; the restrictions then become irksome, and they sometimes shun the doctor, partly because they see that he does not attach much importance to drugs, the giving of which still represents too largely in the public mind the function of the physician, and partly because they do not want to exercise the self-denial which they feel will be demanded of them. In the milder cases past middle life perhaps no great harm results. It is the cases of medium severity which are most apt to suffer from this ostrich-like procedure. We can roughly classify our diabetic patients into those of (*a*) severe, (*b*) moderately severe, and (*c*) mild type.

The classification of any given case can usually be more accurately made after than before a suitable diet is enforced, as some cases prove more or less manageable than we expect when we first see them. And yet, classify as we will, there is every possible gradation between the extremes.

I trust that a few illustrative cases will not trespass too much upon your patience. A patient under twenty is sure to be of the severest type, and is, with very rare exceptions, beyond hope; and yet life may be prolonged even for ten years, as in a young man of exceptional resolution and force of character whom I saw several times. A rigid diet should be enforced as long as it can be tolerated and strength and weight are maintained.

I. Two years ago I saw a girl of ten. Polyuria and sugar had recently and inexplicably appeared. Under strict diet she became sugar free for a considerable time. She now, under the same diet, passes about 50 oz. of urine containing 8% of sugar, looks and feels well, and has held her weight.

II. A school girl of eighteen spent Christmas vacation at home and appeared to her mother as well as usual. She returned to boarding school and soon complained of extreme hunger and thirst, with increasing lassitude. Polyuria was also noted. She lost flesh rapidly, and was sent home Jan. 27. She passed four quarts of urine in the twenty-four hours following her return, and the amount of sugar was 4.6%. There were marked acetone and diacetic acid reactions. In spite of large doses of bicarbonate of soda, and without much change in diet, she went into coma, and died Jan. 30, three days after her return from school. The whole process, as nearly as could be ascertained, was of a little less than a month's duration.

III. A man now thirty-eight, active, florid, muscular, weighing 206, consulted me seven years ago for marked polyuria and 4% of sugar. The polyuria was recent, but the sugar was probably of older date, as he had had eczema of the penis the previous summer. Under strict diet in two weeks the urine became normal. There was a slight loss of weight. He now weighs 175 to 180. He is in good general condition, in spite of extreme and unavoidable business worries and hard work the past four or five years. He has relaxed, and again restricted his diet, sugar reappearing in the urine with less provocation than formerly. I doubt if he will attain old age, though I hope I may be mistaken.

IV. A woman of forty-one, weighing 185, entered the hospital in July, 1891, for sciatica. She had a moderate polyuria with about 1% of sugar, varying from day to day. Under treatment the sugar disappeared from the urine, and she was discharged much relieved after a month in the hospital. A brief record in 1897 states that she was looking well, sugar present. Two other records the same year show sugar in her urine in amounts varying from 1% to 1½%. She entered the hospital again in December, 1903, saying she had taken no special care of herself, except to avoid sweet stuffs. During her two weeks' stay in the hospital this time the urine varied between 42 and 72 oz., the largest amount of sugar being 6%, the lowest, under strict diet, $\frac{1}{10}$ of 1%. She was discharged at her own request, the urine still containing sugar; no acetone or diacetic acid reaction at any time. Weight 175. In twelve years she seems to have lost no ground, and her case is probably to be classed as a favorable one.

V. Seven years ago a man, then sixty-three, of large business responsibilities, first consulted me. Ten months before that a competent observer had found no sugar in his urine. I found a moderate polyuria, and a percentage of sugar.

Weight 184. He was easily rendered sugar free, and after a time could tolerate a moderate amount of starch. From time to time he broke loose, has gradually developed a marked arteriosclerosis, which last spring led, through rank imprudence, to a uremic attack. This has necessitated some change in his diet, and he has never fully regained the weight he lost last spring, now weighing 165, and passing about 2% of sugar without polyuria. He feels well and is in active work, having few mental resources outside of his business.

VI. Shortly after this his brother, one and a half years younger, came to me with great polyuria and much sugar, recent in onset. All symptoms disappeared rapidly under diet, and I have not seen him professionally for six years. About that time he was elected to Congress, and has been since active in political and campaign work, feeling very well with moderate dietary restriction. These brothers are fair examples of diabetes coming on after middle life, in well-nourished though not obese persons — the milder type of the disease. It is usually not necessary to enforce an absolute diet in such cases long; moderate restriction can then be allowed. Some of these cases can later return to practically an ordinary diet without reappearance of sugar. The experience of all of you can, doubtless, duplicate such cases as I have sketched.

In the young, treatment can at best only delay the fatal result. In those in the prime of life great service can generally be rendered, though actual cure occurs only in the minority of cases. In those past middle life the disease is usually well tolerated, and may be of comparatively little moment, provided that reasonable care be exercised; and yet, now and then we encounter cases the course of which proves other than first impressions would lead us to expect.

MEDICAL TREATMENT OF DIABETES.[1]

BY W. H. THOMSON, M.D., LL.D., NEW YORK.

THE pathology of diabetes mellitus has been the most elusive subject of modern medicine. Repeatedly during the past forty years we have seemed to be on the verge of important discoveries relating to it, only to find that our uncertainties, instead of being dispelled, had simply taken new forms, which in turn have raised other problems to solve.

It is, of course, due to the great obscurity resting upon the physiological mechanism for the disposal of the carbohydrates of food in the system that the pathology of diabetes has remained so uncertain. Fifteen years ago in a symposium like this, held at a medical gathering in New York City, I suggested that we were yet without any knowledge of a seemingly important factor in the problem, and that was the relation of the muscular tissues to the utilization of the saccharine elements of food. The facts which we did know then were that the muscular tissues were virtually the chief generators of animal heat, and that quite apart from their function of contraction and of relaxation was their function of oxidation, so that the blood collected from the veins of a large muscle like the gluteus, though the muscle were at perfect rest, yet contained less oxygen and more carbon dioxide than the blood of the right ventricle itself, as this latter was mixed with blood from the great glandular viscera, where oxidation is less active than in muscle. This shows how much burning up of blood contents occurs when the blood is coursing through muscular tissue, and as the chief material for such oxidation consists of carbohydrates, some failure in this muscular function might have much to do with the pathological failure of sugar oxidation in diabetes.

This suggestion was received with incredulity, and most of the speakers confined their attention to the supposed relations of the nervous system and of the glycogenic functions of the liver to this disease. Not long afterwards the pancreas in its relation to diabetes came to the front, and has maintained its place as one important factor in the problem ever since. Lately the news comes that O. Cohnheim finds that an enzyme is produced in muscle which if alone does not act upon sugar, but when mixed with the secretion of the pancreatic cells of Langerhans is a very energetic solvent, in the same way that trypsin becomes effective only when conjoined with the kinesic ferment in the intestine.

Until physiology becomes settled, pathology cannot be settled; and, therefore, therapeutics, while matters so stand, must remain mainly empirical. And so I confess that I regard the subject of medical treatment of diabetes, which has been assigned to me, as one to which I can contribute little beyond the results of my experience, based upon written notes of the histories of patients whom I have treated in the course of years.

To the question, When does glycosuria mean diabetes? my answer is that we do not know. That glycosuria, limiting that term to dextrosuria, is an epiphenomenon, appearing in the most diverse connections, we all know. Like albuminuria, it occurs too often and too variously as a temporary accompaniment of different disorders to be rated as frequently no more than a symptom. In the case, however, of albuminuria we usually can form some conception of its causation. But with glycosuria we do not know whence it cometh nor whither it goeth; and, therefore, we can never be sure what its significance is. Hence, I feel skeptical about the assurance with which some pronounce offhand a given case as one only of glycosuria and another as surely diabetes, because in my experience some patients come with both a moderate and an intermittent presence of sugar in the urine, and with no consti-

[1] Read before the Medical Society of the State of New York at its Annual Meeting, Albany, Jan. 26, 1904. Symposium on Diabetes.

tutional disturbance, but who in time develop into confirmed diaoetics, while others may come with very saccharine urine and severe constitutional symptoms, only to improve under treatment and finally get well. Nor does the recent date of the disorder make much difference. Some begin suddenly and soon develop grave symptoms, and then become permanently free from their trouble, while others begin just as suddenly and never get well. The only valid distinction which I admit is that the presence in the urine of diacetic acid, shown by the ferric chloride test, is generally indicative of confirmed diabetes.

My practice, therefore, is to pronouce a glycosuria which has lasted more than a year diabetes. Time, in other words, and not the variability either of the glycosuria or of any other accompaniments, is my ground for diagnosis. Persistent glycosuria in its way is much the same as persistent albuminuria in its way, that is, each means that the patient has a serious disorder; and *pro tanto*, it does not much matter what name we choose to tack to the disorder when the question is how we are to treat it.

As it is the patient, and not his named disease, which is to be dealt with, all factors entering into his story have to be taken into account; and the first of these facts is age. The rule is, the younger the patient, the worse it is for him. Why it should be so I do not know. The chief significance of this fact, however, is that it points to diabetes as a deeply seated constitutional disorder, and not a localized disease of any one organ, pancreas or other. In keeping with this inference is the hereditary or family proclivity to the disease in instances too numerous to be accidental, and equally so the greater liability of certain races to it. In my experience there is no race which is so subject to diabetes as the Jews. The bearing of this clinical fact upon what remedies we are to expect the most from, and also what reputed remedies we are not to expect much from, we will soon note.

The next consideration to age is the state of the nutrition of the patient. I always make it a point to determine what the daily output of urea is, as well as the amount of sugar passed. If the percentage of urea is continuously high there is real emaciation going on, even if the patient be fat. The sugar itself, indeed, may disappear, but the urea excretion may remain one-half more or double what it ought to be. The patient must have medicines for that.

The patient may be obese. This condition calls for special medication on account of danger from the heart. If he has oxalates alternate with abundant uric acid crystals in his urine, all the oetter for him. He may be a profitable patient to us for years, though, *pace* glycosurists, he should not be allowed to forget that he has diabetes, and so on. All I wish to illustrate by this preface to my subject, announced on the card as "Medical Treatment of Diabetes," is that I would prefer to have it read, "Medical Treatment of Diabetic Patients."

As to medicines, I would begin with the statement that I but rarely prescribe opium, codeine or any other of the opium derivatives; and I beg leave to take a short time to explain why, in such a constitutional disease as diabetes, I cannot regard this drug as of real service, though it has been long and generally recommended in textbooks. Nervines, such as opium, belladonna, strychnin. aconite, etc., are agents which affect certain functions of the nervous system. They, therefore, are only functional remedies, and they have no power whatever in therapeutic doses to directly affect structure or nutrition, however long they be prescribed. All that they ever do is temporarily to produce some functional symptoms, but they never affect the texture or the nutrition of tissues or organs, either beneficially or injuriously. Therefore, none of them can touch diabetes itself any more than they can touch typhoid fever; however, some of them may relieve for a time some serious symptoms in both diabetes and in typhoid fever. As a veteran teacher of materia medica, I used to urge that no functional or symptom medicine, such as the nervines, could be expected to modify an organic disease in any way, either for good or evil, the only exception being in the case of colchicum,[1] which can produce organic changes. Alcohol produces organic changes only by virtue of its chemical and not by its nervine properties. One of the most powerful nervines for properties is nicotine. There is a great deal of functionally active nicotine in a cigar. Let any one who has never smoked a cigar try it, and he will soon illustrate what nicotine can do. Now, my father, my grandfather and my great-grandfather began to take nicotine by smoking tobacco about the same time of life that I did, namely, at twelve years of age, and continued the same to the last year of their lives, which was at the age of eighty-eight, eighty-seven and ninety-two, respectively, while I am well on to my three-score and ten. Can nicotine, therefore, not injure the bodily mechanism? Never, in rational doses, for like all other nervines, in such doses it can neither do permanent good nor permanent harm.

To this class of functional medicines belongs opium and its derivatives; and, therefore, diabetes continues progressive, however continuously or fully opium is prescribed. A functional medicine is one whose whole action can be secured by one dose. Its hundredth dose does not do any more than the first dose does, sometimes not as much, for with many of this class,

[1] Dr. Norwood of Alabama, well known for Norwood's Tincture of Veratrum Viride, narrated to me how five young men in his neighborhood, while on a "spree," broke into a country doctor's office, in the doctor's absence, and drank to his health out of a bottle of wine of colchicum, which they mistook for sherry. Two of them died, but Dr. Norwood saw the survivors a number of weeks afterwards, when they had lost all their hair, including their eyebrows, and were as generally yellow as persons recovering from cobra snake venom. Now, recovery of healthy persons from the most dangerous degrees of poisoning by opium, belladonna, aconite, etc., is generally complete after twenty-four hours, with no lasting nutritional change whatever.

as with tobacco, the system becomes used to them. A man may for many years relieve an asthmatic attack by stramonium, but it is not his disease — asthma — which is thereby dealt with, but its symptom, bronchial spasm, and his last dose of stramonium does not do more for him than the first dose did, taken years before. More efficacious against his asthma itself would be arsenic and potassium iodide, which no more act in one dose than mercury does in syphilis, or iron in anemia. The fundamental difference between functional medicines, which influence only functions, and organic medicines, which change the nutrition of tissues or organs, would be more widely recognized but for the confusion which exists in many minds about the term "function." Because function is deranged whenever organism is deranged, therefore it is supposed that the converse of this statement is equally true, namely, that a derangement of function must always imply a corresponding derangement of organism. A simple illustration will show the difference. The function of an oil lamp is to give light. Derange the mechanism of the lamp by a leak in the globe, or by an injury to the wick-holder, or by the loss of the wick, and the light-giving function of the lamp is correspondingly deranged. But the entire mechanism of the lamp may be perfectly intact, and yet it will give no light because the source of its function, namely, the oil, is changed by mixing it with water. So a steam engine may be perfect in every detail of its mechanism and yet not go because the source of its function, namely, the coal, is lacking. So in the living mechanism, its functions need power therefor, and that power is in the blood. Functional medicines act only on and through the blood, and not on the tissues. This being so, functional medicines can act only temporarily; they have to be renewed just as the oil in the lamp has to be renewed, though the lamp itself remains the same indefinitely. The oil can remedy no injury to the mechanism of the lamp; and likewise every functional medicine is powerless against a truly organic injurious change going on in the living mechanism.

Functional medicines we need constantly in practice to relieve symptoms, or to meet emergencies. They are indispensable for such purposes, but we should always remember that they are powerless against an organic injurious change going on in the living mechanism. All which a functional medicine can do is to deal with a temporary derangement, not in the structure but in the working, that is, in the function, of the body; and this it does immediately in one dose. But no specifically permanent changes should be expected from it. Opium may affect the symptom, sugar in the urine, by temporarily diminishing it, but it has no effect on the disease causing that symptom.

We must look elsewhere in such a constitutional disease as diabetes than to such functional medicines as opium, and I notice that of late experience is leading many physicians to abandon its use in this disease. For a number of years I have advocated the free use of cod liver oil in diabetes. I was specially led to do this by its remarkable effect in the case of two brothers whom I treated thirty-two years ago. The first, an active business man, aged thirty-five, came to me with polyuria, thirst, emaciation and progressive loss of strength, for which he had been treated unavailingly for a year with the usual course of diet and drugs. He then took larger doses of cod liver oil than any patient in my experience, for he said that he never measured it, but took it directly from the bottle as a drink, followed by Vichy water. In another year's time he was cured, and he has remained well ever since. His brother, two years younger, came to me the following year with much the same condition, as far as the great quantity of sugar in the urine was concerned, but he suffered in addition from general bronchitis. He found that he could stomach cod liver oil as well as his brother, and with equally good results. The younger the patient, the more persistently I urge the taking of this remedy, and I adopt every resource to make its free use possible by the patient, by the administration with it of pepsin and bismuth. So long as the stomach does not rebel, diabetic patients of this class cannot take too much cod liver oil. Whether this oil acts as a substitute for the starchy elements, or whether it spares the proteids from disintegration, or whether it acts as a nerve food, or whether it acts by increasing the red corpuscles, I do not know; but as an empirical fact I can testify that it both diminishes the sugar and the excess of urea eliminated whenever it is taken freely and is well borne. As in all cases where we aim at influencing nutrition by any measure, it must be used both systematically and perseveringly. Obesity contraindicates it, and likewise I should not give it to patients of very sedentary habits; but it is quite useful with many elderly people.

Next to cod liver oil, I would mention iron. As before remarked, I have long suspected diabetes as largely a muscle disease, and throughout the animal kingdom muscular power is directly proportioned to the intake of oxygen. As iron can act in us only in its capacity of an oxygen carrier, I try to give diabetics all the iron which they can take, along with all the fresh air which they can get. As iron in many forms tends to cause constipation, which itself not infrequently becomes a serious trouble to diabetics, a very serviceable preparation for them is the old-fashioned Hooper's Pills, whose formula is: ℞. Ferri sulph. ℥ss; powdered senna, powdered jalap, cream of tartar, powdered ginger, each gr. xii. Ext. gentiani q. s. M. Div. in pil. * * *

The progress of medicine in our time has added a class of remedies which are coming more and more into daily use, and to which I would apply the term medicinal, in distinction from surgical, antiseptics. They include a

varied list of phenol derivatives, among which I would include quinine, for sooner or later we may look for its synthetic production from coal tar, as well as the salicylicates and the benzoates. In this class of medicinal antiseptics I would also include arsenic.

It is not improbable that one of the properties of this class of medicines is to start the activity of various enzymes, which in particular states cause derangement of metabolic processes in the body, or lead to disintegration of its tissues. We are only beginning to get some insight into the relations which certain internal secretions bear, on the one hand, to the assimilation of food or, on the other, to the neutralization of poisons in the system, or to the disintegration of the tissues themselves. One of the most striking facts in this connection is the singularly small quantity of the secretions themselves which seems to suffice to maintain the important functions which they subserve. Thus the total extirpation of the pancreas in dogs induces a fatal diabetes. This diabetes is ascribed to the removal of the scattered glandular structures in the pancreas, called the islands of Langerhans. But if three-fourths of the pancreas be excised, so that only one-fourth remains, the small remnant of these island cells is yet enough by their secretion to prevent glycosuria. This indicates that this internal secretion is of the nature of an enzyme, which can propagate its action from very small beginnings. The small bodies, called the parathyroids, have recently been proved to be essential to life, owing to their internal secretion neutralizing a virulent poison, generated most probably in the alimentary canal, and which poison causes fatal tetanic convulsions. So excision of three-fourths of the kidneys, leaving only one-fourth of kidney substance, is followed by death, preceded by great polyuria, with such excessive excretion of urea that it seems as if the proteid tissues were undergoing rapid dissolution. This remarkable result is ascribed to the kidneys, having as their function not only to excrete, but also to regulate, the production of urea by an internal renal secretion.

However that may be, I have for some time been much interested with cases which have come under my observation of excessive secretion of urea which, in a way, resembles saccharine diabetes. On the 5th of last month I was consulted by a healthy looking young man, aged twenty-three. He seemed to be a typical neurasthenic, for his complaints were that two years ago he had a sudden nervous breakdown, ever since which he could not apply his mind to anything. He has a constant sense of fatigue, is very nervous and dyspeptic, especially intolerant of starchy food and very insomnic. His pulse was soft and weak. Examination of his urine showed that he passed no less than 51 gm. of urea a day, while according to his size and on his restricted diet, he should normally pass only 22 gm. The total solids of the urine amounted to the high figure of 114.37 gm., or 1,715 gr. There was no albumen, nor casts, nor sugar in the urine by any test, and he had no fever. His family history was decidedly unfavorable in the respect of neuroses, one brother being in an asylum, an elder sister with something like cyclical insanity, and another sister, younger than himself, is abnormally fleshy.

I put him on the same treatment that I would a diabetic, namely, a shellac-covered capsule, containing 5 gr. of sulpho-carbolate of soda and 1 gr. of potassium permanganate, to be taken half an hour after meals and at night; and one hour after meals t. i. d. a powder of 10 gr. of sodium sulphate and 10 gr. of sodium benzoate. On the 16th he came again, remarkably improved in all his symptoms. His urea had fallen from 51 gm. to 30 gm., and the total solids had decreased 250 gr. To add now 10 gr. of aspirin to each dose of the sulpho-carbolate, or 40 gr. per diem. On Jan. 16 he reported that he was able to do more work than he had done for some years, and that he was now studying to pass a university examination.

I believe that if physicians, instead of being content in their examinations with discovering whether there were abnormal ingredients in the urine of patients, would also uniformly investigate whether the normal ingredients were present in their healthy proportion, more cases of this kind would be found than are generally suspected. What special process led to such abnormal waste in this patient I do not know, any more than what the real processes are which underlie the disease diabetes. The processes of the chemistry of life are altogether too complex, and too imperfectly understood as yet for us to make more than doubtful guesses. But as an empirical fact, I am sure that I succeed better in controlling diabetes mellitus, as far as the use of drugs goes, by a persistent and free administration of antiseptics than by any other means, cod liver oil and iron excepted. In such a disease the therapeutic tests should be sought for only in severe and prolonged cases; and I will beg leave, in illustration, to cite briefly one such history. He was a gentleman, aged forty-two, who after a year of severe mental strain noticed that he was passing water very often, and that his shirt when wet by the urine was stiffened by it. He was put on diet, opium and codeine, by his physician; but as he was steadily losing flesh and strength and was subject to alarming attacks of syncope, he finally consulted me. I first saw him after one of these attacks. He was cyanosed and extremely dyspnoic. Another attack soon occurred, in which he seemed to be passing into diabetic coma. For sixteen years after this I conducted the management of his case, watching him very closely, as he was a most intimate friend of mine, and though I never found sugar absent from his urine, during those sixteen years he ably performed the exacting duties of chief editor of one the largest of New York's daily newspapers. He then moved to another city, to enter upon a much less exacting business. I

warned him that he was by no means a well man, and that he should continue his treatment without change. I learned, however, that he became quite careless, and in three months he succumbed to an attack of bronchitis. Such histories of years of active life while keeping up treatment, soon followed by fatal decline on cessation of the same, have occurred more than once in my experience. Nature does not cure diabetes.

As remarked before, I would include arsenic in this class of antiseptics, as it comes nearer in its properties as a medicine to such agents than to any other. My usual practice is to combine it in the same prescription with them, and, therefore, I ordinarily give arsenious acid itself, watching for the development of arsenical symptoms, just as in prescribing it for any other purpose. Some of the liquid preparations, as Fowler's solution, the Lig. arsenici hydrochlorici or the bromide of arsenic, have the advantage that the dose may be increased or diminished more readily; but I have failed to note any special advantage in changing the form of the drug, because it is arsenic itself in them all to which the effect is due. As to the rest, their administration should be varied from time to time, on the general principle that the too continued use of any drug tends to lessen its efficacy, or in the case of the salicylicates to irritation of the kidneys. If called to a patient who is voiding so large an amount of sugar that a speedy reduction of it is imperative, I would give 15 gr. of antipyrin, with the same of sod. benzoas, four times a day. After a time I would substitute 15 gr. of aspirin with 10 of bismuth salicylate. In subacute cases, illustrative prescriptions would be somewhat as follows: Benzosal gr. 48; Sodium benzoate dr. 4; Arsenious acid gr. 1; Sodium salicylate dr. 11. Make 48 capsules. Two an hour after meals and at night. Or, Sodium sulphocarbolate dr. 2; Salicin dr. 1; Phenacetin dr. 2; Ammonia benzoate dr. 4. Make 48 capsules, shellac covered. Two a half hour after meals; and if there be much insomnia, 20 gr. of strontium bromide and 15 of antipyrin at night. Of course, each physician can vary such medication according to indications. A weekly dose of blue pill is nearly always beneficial to patients after middle life. Unless the patient be much emaciated, one of the means which works well to prevent the tendency to constipation is a powder, dissolved in a tumbler of hot water and sipped slowly on rising, of a drachm and a half of sod. bicarb., half a drachm of sod. sulphas. and of magnes. sulphas. each, and 10 gr. of sod. salicylicas.

Alkalies, in the form of mineral waters, have always held a deserved place in the treatment of diabetes. There is, however, one caution to be always borne in mind, and that is that the free use of all saline water tends to increase the waste of the system, so to speak, and they should not be given to any one who is really losing flesh. I think that I have seen them do harm to emaciating diabetics.

Diabetes is a very serious disease on one account alone, if not on other accounts, in that it virtually compels a starvation of an essential element of food. The system must have sugar, and if it does not get the sugar which it can use in the food, it will turn to its own proteid for sugar. Along with this profound perversion poisons begin to be generated, of which oxybutyric acid and its derivatives are doubtless only a part, and which poisoning we are practically unable to neutralize. Our function, therefore, is to put off the evil day of these terminal developments as long as possible; and to do that, I am sure that merely functional medicines will afford us no help. The essentials of the chemistry of this specific toxemia are yet unknown. The formation of acetone and of diacetic acid occurs early, but the blood itself often changes its color, owing to the abundant presence in it of fatty and of proteid granules. Something, however, holds back the carbon dioxide in the tissues, for it is a mistake to ascribe the low percentage of carbonic acid in the blood to its hyperacidity, because the blood of these patients when drawn will take up oxygen or carbonic acid about as freely as normal blood. The last step is the rapid disappearance of sugar from the urine. Why sugar is absent in diabetic coma we do not know, but significantly enough the first danger signal comes from the kidneys, for before drowsiness begins the urine often deposits an enormous number of peculiar looking casts. To postpone the well-nigh inevitable death in these conditions, I rely upon the most trustworthy diuretic which we possess, namely, prolonged intestinal irrigation with hot normal saline solution, by means of the best instrument for the purpose which I know of, Kemp's rectal irrigator. Hypodermic injections of 7 to 14 gr. of camphor in sterilized almond or olive oil answer best to sustain the failing heart, while diluted milk holding all the sodium bicarbonate which the patient can take is the only recourse left for food. Some of the fatal poison doubtless could be washed out if we could bleed the patient freely and transfuse an equivalent amount of normal saline.

A COMPARISON BETWEEN THE MEDICAL USES OF THE X-RAYS AND THE RAYS FROM THE SALTS OF RADIUM.[1]

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THE greater interest in the salts of radium lies in their relation to science, especially to physics and chemistry; but as they can be of service in medicine, it will be instructive, I think, to attempt to estimate the probable value in this field of the rays which they emit; we will not consider the emanation. Perhaps this can best be done by comparison with another

[1] Read at the Annual Meeting of the Boston Society for Medical Improvement, Jan. 18, 1904.

Lantern projections were shown of a frog taken by the Beta and Gamma rays together, by the Gamma rays alone and by the x-rays; projections were also shown of a number of patients, chiefly with superficial cancers, who had been successfully treated by the x-rays. The fluorescence excited in willemite by pure radium bromide was also shown.

form of radiation, namely the x-rays, which has been in use for nearly eight years and has had time to give proof of its value in diagnosis and treatment.

The beautiful radiographs that can be taken by the x-rays make them of great assistance in surgical diagnosis in cases of fractures and diseases of the bones, for example, in the location of foreign bodies and in the detection of most varieties of calculi, whether in the kidneys, ureters or bladder.

Radiographs and the fluorescent screen render valuable assistance in medical diagnosis. An aneurism of the aorta in the early stage can be detected more certainly by an x-ray examination than by any other method, and its progress can be watched in a way that has hitherto been out of the question. Mediastinal growths, the size and position of the heart and central pneumonias, for example, can be recognized better by means of an x-ray examination than by any other method. The question as to whether or not fluid is present in the chest is sometimes doubtful by the usual physical examination, but its absence can be determined by means of the fluoroscope. The great service of which the x-rays are capable in the most fatal of all diseases, pulmonary tuberculosis, deserves especial emphasis and cannot be repeated too often; the diagnosis of this disease in an incipient stage can be made with more certainty by the aid of the x-rays than is otherwise possible; it may sometimes be satisfactorily made before there are any definite physical signs in the chest. The frequency with which this disease occurs and the opportunity which an early diagnosis offers for successful treatment make the x-rays peculiarly valuable when there is a question of this disease; moreover, not only is the proportion of recoveries larger in the early stages, but also the patient is obliged to give up much less time to the restoration of his health than is necessary when the disease is further advanced, a very important consideration.

The abdominal cavity offers less opportunity for the use of the x-rays, but this is a field which can be further cultivated.

The x-rays are also useful as a therapeutic agent. They may not only relieve the pain that accompanies cancer, but also pain produced by other causes, that of intercostal neuralgia, for example; they may be employed as what, for want of a better name, I may term a tonic and a cardiac stimulant; they may be used for the treatment of skin diseases and new growths; many cases of skin diseases and many forms of superficial new growths, especially face cancers, have been healed by their means.

I attempted some months ago to make a comparison between the results following the use of surgical treatment of new growths and those I had obtained in 150 cases of new growths that I had treated by the x-rays, up to Jan. 1, 1903, but was unable to find tables giving exactly the percentage of success to be expected in different forms with the usual surgical treatment. Such statistics would be helpful in estimating the value of the x-rays and of radium.

The outline given above is sufficient to indicate the directions in which the x-rays are of assistance; now let us consider what can be expected from radium salts as an aid in diagnosis, whether by means of radiographs or by fluoroscopic examinations or as a therapeutic agent. To this end it is necessary to appreciate the fact that this new substance, which belongs to the class Mme. Curie has called radioactive, emits three kinds of rays, named by Rutherford Alpha, Beta and Gamma, which differ greatly in their power of penetration, the Alpha being the most easily absorbed and the Gamma the most penetrating.

Radium salts are unlikely to be of any service in diagnosis by means of radiographs, for if the Beta and Gamma rays are used together (the Alpha do not need consideration, as they are so easily absorbed), the radiograph shows no differentiation between the tissues; if the Gamma rays alone are used, there is a slight indication of the bones, but the results cannot be compared for a moment with those made by the x-rays. Further, the time required is very long, many thousand times that needed for taking a photograph by the x-rays, unless the radium is placed close to the photographic plate, that is, within the fraction of an inch.

Let us next consider whether radium will be of any service in fluoroscopic examinations. The two sides of the chest can be compared in cases of pneumonia or pleurisy, for example, by placing the fluorescent screen on the front of the patient's chest and the radium salts, due precaution being exercised, on the back. The practitioner may thus be able to determine whether or not one part of the chest is denser than the other by watching the fluorescent screen, as it will be less brightly illuminated, of course, on the side where the increased density occurs. For thus observing the chest the Gamma rays only should be used, for if the Beta and Gamma rays were employed together there would be risk of burning the patient; moreover, the Beta rays would be of no advantage, because they would be largely absorbed in the body, as their power of penetration does not compare with that of the Gamma rays. This method of examination would be a very crude one, as these rays have little power to differentiate the tissues.

It is, then, only in the comparatively narrow field of therapeutics that we may expect radium salts to be of value. Dr. William Rollins of Boston was, so far as I am aware, the first to appreciate that this new substance would probably be of service in the treatment of certain diseases. At least two or three years ago he put into my hands a metal box with an aluminum front, containing some chloride of radium, and at his suggestion I employed it for therapeutic purposes, but the radium to be had at that time was too weak to give definite results.

The strength or, to use the term generally

employed, the radioactivity of a given specimen of radium salts is estimated by comparison with that of uranium as a unit. The weaker qualities of radium, which it is comparatively easy to obtain, have a radioactivity of 1,000 or 8,000 or considerably more, but the pure radium salts, which can be had with difficulty only, have a radioactivity of about 1,500,000.

Recently I have employed the pure radium bromide in 50 cases, as described below, using generally 50 mgm. when making an exposure, but on some occasions amounts varying from 10 to 100 mgm. I have abandoned the use of the weaker salts, as they are inefficient.

The 50 cases are divided as follows:

One case of acne, 2 of psoriasis, 5 of lupus vulgaris, 2 of lupus erythematosus, 2 of eczema, 1 of keloid, 5 of rodent ulcer, 28 of epidermoid carcinoma and 4 breast cases.

The case of acne healed under the use of the radium, each pustule being exposed through an opening in a thin sheet of lead foil. The two cases of psoriasis were treated in certain areas with radium and in others by means of the x-rays, for purposes of comparison; healing took place much more quickly in the parts which were exposed to the radium than in those exposed to the x-rays. The two cases of lupus erythematosus are still under treatment. Two of the five cases of lupus vulgaris have healed, and three are under treatment and doing well; in one of these cases a comparison was made between the action of the radium and that of the x-rays, the upper half of a large patch, which involved the greater part of the side of the face, being chosen for the application of the radium, as the disease seemed most severe in this area. The area thus treated has largely healed, whereas less progress has been made in the tract exposed to the x-rays. The same is true of the one case of keloid; the half treated by radium has nearly disappeared, but that treated by the x-rays has only somewhat improved.

The two cases of eczema, on the contrary, did not improve rapidly under the use of the radium, and the itching was not relieved; therefore this treatment was stopped and the x-rays applied.

Three of the five cases of rodent ulcer have healed, and one has nearly healed; the fifth deserves special mention. In this case the growth is very extensive, has involved the side of the face and oroit and has penetrated deeply; it has been operated on several times during the past twenty years, and when a recurrence took place after the last operation was treated by the x-rays, and yielded to this treatment. Later an extensive recurrence took place, which the x-rays on further trial *did* not and which the radium *may* not heal, but the radium has checked the growth of the rodent ulcer and has arrested the rapid loss of strength of the patient. This case would indicate that radium is more efficient than the x-rays.

Fourteen of the 28 cases of epidermoid carcinoma have healed, thirteen are still under treatment and one has discontinued treatment and been operated on for the third time. This patient had a growth on the tongue which was operated on twice. A second recurrence then took place; the x-rays and radium were applied, but although some improvement followed their use, it was not sufficient to warrant the delay of a third operation. In another of the cases of epidermoid carcinoma, in which the new growth was widely distributed over the cheek and a considerable portion of the upper lip, both the radium and the x-rays were used. The part treated by the radium healed more promptly than that exposed to the x-rays.

Three of the four breast cases were recurrences after operation; the radium diminished the indurations in the scar or in the parts in its neighborhood. These indurations yielded more readily to the radium than to the x-rays. The fourth case was a patient who was suffering from carcinoma and who had refused operation. In this case the diseased area was treated both by radium and the x-rays. The results are not yet definite.

In some cases the rays from radium act as an analgesic.

It is evidently the Beta rays which play the greater part in the healing process, rather than the Gamma rays, although the Gamma rays may contribute; but as the exposure in my cases has been, as a rule, from one to three minutes in duration, there would hardly be time for the small proportion of Gamma rays to exert much action. Experience has shown that irritation may be caused in some patients after one minute's exposure to the Beta and Gamma rays together, whereas I have found that an exposure of forty-five minutes to the Gamma rays alone produces no irritation.

The patient and the practitioner must be protected from radium, as they must be from the x-rays, or burns may result a week or two after the undue or, in the case of the practitioner, the unnecessary exposure. Patients vary in their susceptibility to the effect of radium salts, and therefore the dose must be varied to suit the individual patient. The burns caused by radium, like those produced by the x-rays, are, it is said, very difficult to heal. I have had no experience with them.

I am now studying the question as to whether or not radium salts can be of service in treating deep-seated new growths. We have seen that the Beta and Gamma rays together cause healing in cases in which the disease is near the surface, but as the Beta rays are readily absorbed, they will not be of value for the deep-seated growths. I tested the penetrating power of the Beta rays by separating them from the Gamma and then placing my little finger in their path, and found that by this obstruction the Beta rays were largely absorbed. I am now using the Gamma rays in certain superficial cases, by covering the radium capsule with an aluminum cap that shuts off the Beta rays altogether, but does not obstruct the passage of

the Gamma rays. If the Gamma rays cannot cause healing in diseases near the surface, their use as an agent for treating deep-seated new growths may be abandoned. On the contrary, if the superficial cases yield to the Gamma rays, it will be well to study their effect on deep-seated growths. Under no circumstances should the Beta and Gamma rays be used together for deep-seated diseases, because the Beta rays would cause serious injury before the Gamma rays had time to produce a beneficial effect.

Radium as a therapeutic agent has certain advantages when compared with the x-rays. Obviously a grain or two of radium salts is far more convenient as a source of radiation than a large, cumbersome apparatus. The radium is always ready for use, and the amount of radiation it gives off is uniform, so that, without having recourse to the fluorometer to measure the output, as in the case of an x-ray tube, the dose can be adjusted exactly in two ways, — either by varying the time during which the part to be treated is exposed or by varying the distance of the radium from the patient. Radium can also be better used in cavities.

The healing action of radium salts, as ordinarily used, that is, when the Beta and Gamma rays are employed together, is limited to parts on or near the surface of the body or its cavities, and to a small area, unless the radium capsule is moved from place to place. The x-rays, on the contrary, can act at one time on the whole side of the trunk. On the other hand, certain superficial new growths yield to radium that do not to the x-rays, and the action of the radium is more prompt. Whether or not these results will be permanent time only can show.

Since many superficial new growths are healed by radium or the x-rays, although more slowly by the latter, it is quite possible that in many cases it would be an advantage to use both forms of radiation, either on the same or on alternate days.

Summary. — (1) The rays from radium salts, unlike the x-rays, are not serviceable in diagnosis either by means of radiographs or of fluoroscopic examinations.

(2) The Beta rays are useful as a therapeutic agent in certain skin diseases and new growths, if the diseased tissues are superficial or are not more than about 1.25 cm. (one-half an inch) below the surface of the skin or accessible mucous membranes.

(3) The Beta rays from radium salts will heal some cases of new growths that are not healed by the x-rays, and they act more promptly, but not over so large a surface at one time as the x-rays.

(4) Radium salts of an activity of 8,000, or considerably more, are not sufficiently strong to be efficient. Pure radium salts, which have a radioactivity of about 1,500,000, are not too strong for the work to be done.

(5) The radiation from radium salts, unlike that from the x-ray tube, is uniform.

(6) Great care should be exercised to avoid burns.

THE PROGNOSIS OF IDIOPATHIC PLEURISY.[1]

BY GEORGE G. SEARS, M.D., BOSTON,

Visiting Physician, Boston City Hospital; Assistant Professor of Clinical Medicine, Harvard Medical School.

THE statistics which form the basis of this paper are drawn from 439 cases of pleurisy which were treated in the Boston City Hospital between the years 1880 and 1895. They include those only in which no suspicion arose that the acute attack was a secondary manifestation of some process already existing. The possibility of a previous tuberculosis, as shown by a history of cough for several weeks, of hemoptysis, hip disease, etc., was thought sufficient to exclude, and none are included which appeared in the course of pneumonia, typhoid fever or other acute disease. They are grouped together as instances of acute, idiopathic pleurisy, the pleurisy *a frigore* of the older writers, without regard to their possible etiology. They have been studied with the sole purpose of determining whether they threw any light on the question of prognosis, which, apart from its immediate interest to the individual, has assumed economic importance since life underwriters have begun to consider that an attack of pleurisy is sufficient to postpone the acceptance of a risk until a certain period of probation has elapsed. No attempt has been made to trace their later history except in the mortality records in the state archives, which, owing to the shifting character of the population from which they are drawn, can at best contain only a portion of the actual deaths which have occurred among them. Eighty-six (20%) of these 439 cases are known to have died within seventeen years, and this number should possibly be increased by 23 who are classed in the following table as "doubtful" because the hospital record and the death certificate failed to tally sufficiently closely to make identification absolutely complete. If the latter are added the percentage of the dead rises to 25. Their length of life after the attack of pleurisy is given below, the doubtful cases being included in brackets.

Number died within 2 years	30	(5)
Number died 2 to 5 years later	26	(6)
Number died 5 to 10 years later	15	(9)
Number died 10 to 15 years later	13	(2)
Number died 15 to 17 years later	2	(1)
	86	23

The cause of death appears in the following table:

Cause of Death.	Identified.	Doubtful.
Phthisis	45	13
Pleurisy	5	1
Empyema	1	0
Bronchitis	3	0

[1] Read at the Annual Meeting of the Boston Society for Medical Improvement, Jan. 18, 1904.

Cause of Death.	Identified.	Doubtful.
Edema Lungs	1	0
Pneumonia	6	4
Meningitis	3	2
Intestinal Obstruction	1	0
Nephritis	3	0
Apoplexy	2	1
Heart	5	2
Typhoid	2	0
Chronic Hepatitis	1	0
Gastritis	1	0
Alcohol	2	0
Accidental	5	0

The difficulty of connecting the deaths with the attack of pleurisy is obvious in many of these cases. A fatal result from accident, alcohol, apoplexy, heart disease, gastritis or chronic hepatitis shows no reasonable dependence on it; on the other hand, suspicion arises when the cause is assigned as nephritis (amyloid kidney?), pneumonia or typhoid that the whole truth may not have been told, and that an effort has been made either to avoid the necessity of notification or to save the small insurance which many of them carry, and which might have been forfeited if a frank declaration of tuberculosis had been made. Mays' recent analysis of the death returns from pneumonia and phthisis gives distinct emphasis to this point, since he shows that the number of deaths from the former is relatively much greater in the states where notification of tuberculosis is compulsory.

The relation is clear where death was attributed either to pleurisy or empyema, of which there were six instances. It is more than probable, considering our present ideas as to the etiology of cases of idiopathic origin, when some form of tuberculosis has been assigned, of which there were 45 cases, and probable where death has been certified as occurring from edema of the lungs of five months' duration, bronchitis or meningitis (seven cases). The case of intestinal obstruction may also belong to this class, but without this there are 58 (13%) where the connection seems very probable, or, including the doubtful cases, 74 (17%). Their length of life after the attack of pleurisy is given in the following table, the doubtful cases appearing in brackets:

Under 2 years	23	(4)
2 to 5 years	18	(6)
5 to 10 years	7	(4)
10 to 15 years	9	(2)
15 to 16 years	1	
	58	16

The table shows that over 39% of the deaths among the patients who could be definitely identified had occurred within two years, and over 70% within five. This ratio is not materially altered if the doubtful cases are included. The number whose death occurred within two years is noteworthy; some of them might have been omitted as victims already of a well-marked tuberculosis if a more detailed history had been given or if an autopsy had been held.

A similar series of cases, drawn from the records of the Massachusetts General Hospital, was more fully reported by Dr. R. C. Cabot, in that he was able to trace a considerable portion that were still living. It was his conclusions, which were much more optimistic as to the ultimate outcome than those usually accepted, which stimulated me to make the present investigation. He found among 300 patients that 117 (39%) were known to be living and well from two to more than twenty years after their discharge, more than half of whom had been followed for over ten years, while 31 (10%) had died. Of the latter group 17, more than half, had died of some form of tuberculosis, and 6 others were then suffering from a tubercular process. 43.5% had contracted tuberculosis within five years, and 78% within ten. 146 patients could not be traced. A comparison of these figures with those furnished by the City Hospital shows that in the former 7.6% of all cases are known to have developed tuberculosis against 13% in the latter; while of the total deaths 55% of the former and 67.4% of the latter were attributable to some condition presumably connected with the original attack of pleurisy. Cabot brings out the striking fact that among the Massachusetts General Hospital cases 67% of those who became tuberculous had tuberculosis in their immediate family or in their own past history, while only 25% of those who had remained in perfect health for five years or more were so tainted. This difference was not noticeable among the City Hospital cases, possibly because the earlier records were often silent regarding the family history. In both series the percentage of cases with recurrent attacks was about 3% (3% and 3.8% respectively).

The sources of error in the interpretation of these figures are many and obvious. They do not appear, however, to justify so hopeful a view as Cabot has expressed, but rather to give reason for the suspicion that an attack of pleurisy may be a manifestation of a constitutional taint, which may be the cause of death years after apparent recovery. How great the danger is they do not show, for the only conclusions which they justify are these:

(1) That about 10% of these cases are known to have developed tuberculosis.

(2) That over 55% of all cases which were followed to their death had died from some form of tuberculosis.

(3) That tuberculosis, when it occurred, developed within five years in over 50% and within ten years in over 70%.

(4) That this danger is much increased by a tubercular family history or a personal history of some form of tuberculosis previous to the attack.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

CLINICAL MEETING OF THE STAFF HELD AT THE TREADWELL LIBRARY, DEC. 12, 1903.

(Concluded from No. 7, p. 186.)

A CASE OF RUPTURED SPLEEN. OPERATION AND RECOVERY.

BY G. W. W. BREWSTER, M.D., BOSTON.

JENNIE W., aged six, was brought to the accident room of the Massachusetts General Hospital July 2, 1903, with a history of having been run over by a team. Examination by the house physician showed slight pain in the right leg and a little abdominal tenderness around the umbilicus, with bruises over the legs and back. No one saw the accident, and no facts as to the severity of the injury were obtained. She was sent home and told to report to the Out-Patient Department the next day. Examination the next day by Dr. Greenough in the Out-Patient Department led to the child's being sent into the hospital for observation. He was suspicious of some abdominal lesion.

On entrance again to the hospital the examination showed a temperature of 100.2, pulse of 132 and respiration 44. The abdomen was generally distended, with muscular spasm and slight tenderness in the region of the umbilicus. The child was seen by Dr. S. J. Mixter, who advised an immediate operation. The parents would not consent and decided to take the child home against advice.

The same night I was called in consultation by the family physician. I found her with a temperature of 102, pulse 130. The abdomen distended but not tender, somewhat rigid, and dull in the flanks. She was drowsy and though she had been restless, was now stupid. The mother said she had vomited three times during the afternoon. It was explained to the family that the child ought to be operated upon, and that it was her only chance. At that time it seemed probable that there was a ruptured intestine. Finally she was taken back to the hospital and prepared for operation.

As there was nothing to indicate in what part of the abdomen the lesion, if present, existed, I made a median incision just above the umbilicus. On opening the peritoneum dark-colored free blood escaped. This welled up from the pelvis, and fearing a lesion in that part of the abdomen, I rapidly enlarged the opening down to the pubes. After sponging the pelvis free of blood with large pieces of gauze, no lesion could be found. On exploring the left side a small amount of blood was seen trickling down from the region of the splenic flexure. In the mesentery of the descending colon was a small hematoma. The incision was enlarged by cutting across the left rectus. On walling back the intestines with gauze a fissure was seen near the lower pole of the spleen, from which venous blood was trickling. There was no large hemorrhage, but only a small flow of blood. This was entirely controlled by the pressure of two strips of gauze, the ends of which were carried out of an opening in the flank. The abdominal opening was then closed. The cut surfaces of the rectus were sutured with buried chromic catgut and the rest of the incision closed with "through-and-through" silkworm gut sutures.

The wound healed by first intention and the patient was discharged at the end of four weeks.

REPORT OF A CASE OF BONE CYST OF A DIGITAL PHALANX.

BY E. A. CODMAN, M. D., BOSTON.

I want to show this case on account of the rarity of the disease and because the operation and its result are interesting.

This patient is about forty. She came to the Out-Patient Department of the Massachusetts General Hospital in the spring of 1900, complaining of a swelling of that portion of the middle finger, on the left hand, represented by the middle phalanx. There was an enlargement on the sides and dorsum of the finger. It was painless and of bony hardness and not in the least tender. The patient had noticed the swelling of the finger for many months. There was no history of injury or any disease of the bone in other portions of the body. She was otherwise in good health and always had been. There was no specific history.

The surgeon who saw her at the time, suspecting syphilitic dactylitis, prescribed iodide of potassium. She took this faithfully for a while, but it did no good. The phalanx continued to enlarge, and in the spring of 1901 she returned again to the hospital under my care. The accompanying skiagraph shows the tumor at intervals of a year, and the appearance is characteristic of medullary sarcoma. I felt that amputation was indicated, but, bearing in mind the good results which were obtained without amputation from simple excision of medullary sarcoma, I decided to remove the middle phalanx alone and allow the digital phalanx to drop back on the proximal. Under cocaine I removed the affected phalanx with its periosteum, leaving the tendons intact. The wound united by first intention, and for some days, owing to the filling of the space from which the phalanx was removed by blood clot, the finger presented almost a natural appearance. As weeks and months passed, however, a shrinking of the tissues took place and the terminal phalanx was slowly drawn towards the proximal. As the tissues between the phalanges became firmer, the flexor and extensor tendons began to control the movements of the distal phalanx, so that now you will see that there is a very marked flexion and pretty decided extension. She can hold a 5 lb. weight on the flexed finger tip, and the finger is quite useful. The presence of the fingernail makes the cosmetic result much more agreeable to the patient than the stump of the amputated finger would have been. On sawing open the phalanx after it was removed it was found to be a shell of bone containing a cavity filled with straw-colored serous fluid and lined by a soft translucent myxomatous membrane. The cavity was crossed here and there by fine trabeculæ.

Dr. Whitney, from the gross appearance, considered it a myxo-chondroma, but unfortunately the decalcified sections were lost and I have no microscopic report. It seems probable that the tumor was at first an enchondroma which later had undergone a myxomatous degeneration. Bone cysts are very rare in any portion of the body, and as far as I can find this case in a digital phalanx is unique. It is not unlikely that such cysts are formed by the degeneration of chondromata, though it has also been supposed that a blood clot caused by trauma may have sometimes been the original lesion.

The result of the operation is at least interesting, though had I known beforehand what the

tumor was, I should simply have packed the cavity or perhaps done sub-periosteal excision of the phalanx.

EXPLANATION OF PLATE.

Fig. 1. As seen in 1900.
Fig. 2. As seen in 1901.
Fig. 3. As seen in 1903.
Fig. 4. Photograph of hand at rest.
Fig. 5. Holding 5 lb. weight.

Dr. F. B. Harrington showed a case of

PERFORATION OF THE ACETABULUM FROM A FALL OF FOUR AND A HALF FEET.

The patient made a good recovery.

Dr. George L. Walton spoke on

THE DESIRABILITY OF SUPPLEMENTING THE TERMS DEGENERATION AND DEGENERATE BY DEVIATION AND DEVIATE.

(Full paper published in JOURNAL, Jan. 21, 1904.)

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

(Concluded from No. 7, p. 189.)

THE REGENERATION OF THE NASAL MUCOUS MEMBRANE.

THE regeneration of different tissues has been recently extensively studied, especially in Italy. The mucous membrane of the nasal cavities is a complicated structure, and one which in recent years has suffered much at the hands of enthusiastic operators. The processes of repair of this membrane have been carefully studied by Citelli,[7] using the material of Gradenigo's clinic in Turin. A small piece of mucous membrane was removed from the turbinate in many cases, and after the end of from two to sixty days a larger piece, including the previous wound, was removed and examined. Two days after the removal of the first section, the wound surface and the epithelium bordering it was covered with a fibrinous exudate containing leucocytes and red blood corpuscles, which remained until the eighth day. The epithelium in the neighborhood of the wound contained leucocytes and showed signs of necrosis. Most of the glands which were injured by the operation and the erectile tissue, to a greater or less distance from the wound, showed a similar necrosis. The process of repair began in the first few days by proliferation of the oval and round cells of the deeper layers of the epithelium. In eight or ten days these formed the greater part of the epithelium of the new cicatricial tissue. This epithelium was also in part supplied by the glands which escaped destruction in the wounded area. The glands which lay under this area, by vigorous proliferation of the epithelium of their ducts, established an outlet through the newly forming tissue and contributed to the formation of the superficial epithelium. There did not appear to be any reproduction of glands nor any formation of ducts by the invagination of surface epithelium. The erectile tissue showed but little attempt at regeneration, but the necrosis seldom included much more than what was injured by the operation. The granulation tissue which appeared within a few days after the operation arose chiefly from the capillaries and small veins of the superficial layers of the epithelium, and only to a small extent from the underlying erectile and connective tissue. These experiments tend to show that in the removal of superficial parts of the nasal mucous membrane the glands and the erectile tissue are commonly not destroyed. The superficial layers of the mucous membrane are replaced by connective tissue, by the shrinking of which a depression is formed which may be of considerable therapeutic value in cases of obstructed respiration. The removal of the whole turbinate, which was formerly a common operation, is now properly abandoned, since the normal function of the nose is endangered. With the galvano-cautery it is difficult to control the extent of the destructive process, and the time of healing is prolonged.

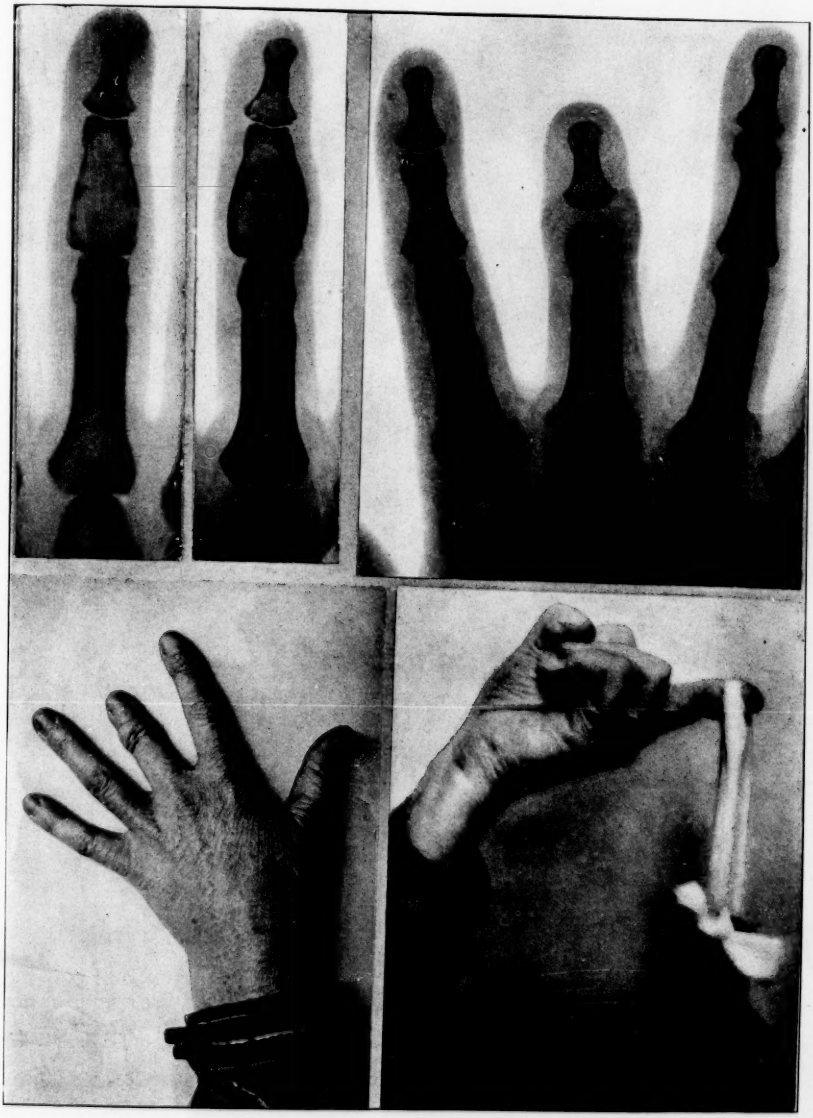
[7] Archiv. f. Laryngol. und Rhin., Bd. xiv, Hft. 2.

THE ARCH OF THE PALATE.

When some years ago it was suggested that the high narrow palate with crowded teeth was the result of adenoid vegetations and proved their past or present existence, this statement was commonly accepted without question. Later this dictum was questioned, and even by good authorities denied. The subject has been recently studied and discussed, with a growing conviction that the causes of the high palate are many and often obscure. Two able papers on the subject appeared a short time ago, one by Swain [8] and one by Bentzen.[9] Swain argues well in opposition to Grosheintz [10] that the upper jaw cannot fail to be affected by abnormal conditions during the years of its development, of which conditions nasal obstruction and mouth breathing are the more common and important, but that other influences may change the shape of the palate is shown by a comparison of the skulls of flat-head Indians with those of other tribes. The paper should be read as a whole to do it justice. In discussing the cause of the arch of the palate the author points out that in the newborn babe the hard palate at the height of the arch is considerably above the level of the Eustachian tube. In the child at puberty it is considerably below the Eustachian tube. Consequently the palate has grown away from the base of the skull by the downward growth of the superior maxillary bone, the septum and the pterygoid processes, so that the palate may be said to grow down instead of up. It would be easy to believe that in an obstructed nose this growth would be retarded, as any growth is retarded by faulty function. Also the child who goes around with his mouth open tends to have the muscular force, the weight of the jaw, the lack of the restraining influence of the upper lip and the streaming of the air through the mouth which adds to the buccal tension and removes

[8] Trans. Amer. Laryngol. Asso., 1903.
[9] Archiv. f. Laryngol. und Rhin., Bd. xiv, Hft. 2.
[10] Boston Med. and Surg. Journ., Jan. 24, 1901.

1 2 3



4 5

Bone Cyst of Phalanx.

the tongue away from exercising any influence upon the upper jaw, all tending to draw down the outer side of the superior maxillary bone. Another factor in the shape of the adult palate, as well as the alignment of the second teeth, is the preservation of the deciduous or milk teeth and in general the care of the teeth of the young child. The circumference of the horizontal arch and the perfect anterior curve are influenced by the retention of the first teeth as long as possible. Of all the arguments presented by dentists, the strongest evidence is that which appears when we consider the trifling force they are constantly using to spread the abnormally contracted jaw in order to give space for replacing the teeth that are out of line. The author concludes that it is possible by deforming processes which artificially alter the shape of the skull to produce a change in form and shape of the hard palate; that in considering the various causes which produce the abnormalities of the palate, we must lay stress upon the lack of proper aëration of the maxillary sinuses retarding their development and hence that of the whole superior maxilla. The conservation and general care of the deciduous teeth help to produce a normal horizontal curve in the hard palate and lessen the tendency to narrowing.

Bentzen's paper, or more accurately treatise, on the etiology of the high arch reviews the literature of the subject and contains the records of many measurements. The literature shows that most authors consider mouth breathing as the cause of the high arch. The opposite theory of Siebenman and his followers looks upon it as hereditary or developmental. The author's researches show that there is no definite relation between the height and breadth of the hard palate, but there may be greatly differing ratios within normal limits. The height of the palate increases up to the twenty-fifth year, after which it recedes, whereas the breadth increases through life. The most rapid growth in breadth is just after the second dentition; in length after puberty. Men have a broader and women have a narrower and relatively higher arch. As a rule, individuals with adenoid vegetations have a higher arch than those without. A curious fact appears that in leptoprosopic skulls the arch is low and in chameprosopic skulls high before the second dentition, whereas after that period the opposite is the rule. This applies both to cases with adenoids and those without. The V-shaped as well as the high arch is much more common with mouth breathing than without; they are more common in males than in females, and in leptoprosopia than in chameprosopia. In conclusion it may be said that after other influences have determined the height of the palatal arch, this height will be increased by adenoid vegetations.

COCAINE.

The use of cocaine in operations upon the upper air passages is the subject of a paper by Bodine.[11] A thorough knowledge of the limitations of this drug, together with a perfected technique in its use, is to be acquired only by patient, persistent effort. Wide variations in strength of solution and manner of application obtain in different patients and in different parts of the body of the same patient. Not only is the manner of introduction of the solution essential, but the psychic element in the patient is to be considered. Actual vasomotor paralysis occurs in proportion to the patient's nervous susceptibility. The acquirement of a personal calmative in the operator is essential. In surgery of the upper air passages, local anesthesia is especially advantageous — we command the cooperation of the patient; his ability to voluntarily cough and expectorate are to our advantage. A greatly diminished number of fatalities from cocaine poisoning are now encountered in current literature, a decrease due to the weaker solution employed. The urethral mucosa is as effectually anesthetized by application of a 2% solution as by one of 10% strength. In all infiltration work it is important to remember that to anesthetize the skin or mucous membrane the injection is made into the skin, not beneath it. If acid secretion covers the nasal mucosa it is of advantage to use a nasal douche of bicarbonate of soda before applying the cocaine. Cocaine will bear momentary boiling without chemical change, though the practical sterility of the solution may be assumed if freshly prepared with sterile salt solution. Cocaine acts by paralyzing the sensory nerves; acute local anemia and pressure are invaluable accessories in producing this effect. Morphine is a reliable antidote to cocaine poisoning; even in profound morphine narcosis cocaine is the quickest and safest antidote. They antidote each other. Crile has lately shown that the nerves of the pharynx and larynx, especially around the glottis and the terminals of the recurrent laryngeal, are endowed with strong inhibitory functions. Rough manipulation of these regions, such as often occurs in removal of adenoids and foreign bodies, and in laryngotomy, may induce alarming and even fatal collapse through reflex inhibition of heart and respiration. Crile and Matas have found that cocainization of a nerve absolutely prevents reflex impression. In connection with surgery in the region of the larynx, he states that the extensive experimentation justifies his statement that cardiac and respiratory inhibition is impossible if the area be cocainized.

THE INFECTION OF THE CERVICAL GLANDS THROUGH THE TONSILS.

This has been the subject of several papers during the past year. Koplik[12] in reviewing the subject points out that the tonsils have long been studied as a seat of tuberculosis, and the literature is quite voluminous on this theme. Conclusions vary because one set of observers has studied the disease from clinical, while another

[11] Laryngoscope, April, 1903.
[12] Amer. Journ. Med. Science, November.

has analyzed pathological material. Tuberculosis of the tonsil may be a primary isolated process unaccompanied by tubercular foci elsewhere; this is exceedingly rare. Several authors speak of primary tuberculosis of the tonsil with accompanying tuberculosis of the cervical lymph nodes. The disease may be limited to these organs, or may spread thence and involve other organs. Secondary forms of tuberculosis of the tonsils are very common, in which tonsilar infection follows pulmonary tuberculosis. In both the primary and secondary forms the cervical lymph nodes are quite constantly affected. Children furnish by far the greater number of cases both of tonsilar tuberculosis and the form of the disease in which the tonsil draws into the infection the cervical lymph nodes. In some cases the tonsil appears normal, in others hypertrophied, the external surface showing no erosions or ulcerations; in fact such pathological appearances are extremely rare. In all the forms the cervical lymph nodes may be enlarged. The largest nodes and those supposedly first affected are found high up behind the tonsil. The affected nodes form a packet, stretching from behind the angle of the jaw along the greater vessels towards the clavicle. Many cases of tubercular cervical adenitis have been shown to have had tonsilar tuberculosis undoubtedly primary, and there is no reason why the tonsils should not admit tubercular infection as well as pyogenic or diphtheritic infection.

The author concludes that the tonsil is the seat of primary tubercular infection, though rarely as compared with the pyogenic forms of infection. The tuberculous tissue is found in the form of giant cells and tubercular nodules; cheesy degeneration is not common; as a rule the lymph nodes leading from the tonsil are affected. Tonsilar tuberculosis may be the source of a general tuberculosis. As far as the cervical lymph nodes are concerned, when found the seat of isolated tubercular infection of a primary nature, it can be justly claimed that such infection has proceeded from the tonsil.

A general discussion of this subject, in which several papers were read, was held by the Section of Laryngology of the British Medical Association at its last annual meeting.[13]

THE OPERATIVE TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

In spite of the fact that this subject has been discussed for years and that recent discussion presents nothing essentially new, it is well to repeat principles which seem to be gaining ground, although not universally accepted. These principles may be briefly summarized as follows: An early diagnosis and treatment are of primary importance. Intralaryngeal methods are to be condemned. Under modern surgical proceedings an exploratory thyrotomy, followed if necessary by a generous removal of tissue, is not a very dangerous operation, and in case of a circumscribed growth is comparatively rarely followed by a recurrence. For a good argument on the subject the reader is referred to a paper by Sir Felix Semon read at the last annual meeting of the British Medical Association.[14]

As a general principle operation should be at once proceeded with if the case lends itself at all to operative interference as soon as the diagnosis is made. We must distinguish between intrinsic and extrinsic malignant disease of the larynx, the former comprising the true interior of the larynx from the ventricular bands downwards, the latter the tumors situated on the aryteno-epiglottic folds, the arytenoid cartilages, epiglottis and the posterior wall of the cricoid cartilage. The distinction from a practical point of view is all important. The intrinsic form remains much longer a purely local affection, and shows very little tendency until the disease is much advanced to infect the neighboring lymphatic glands. Upon this fact depends the enormous difference between the two forms with regard to prognosis, extent and danger of the operation.

We possess at present five different operative methods of dealing with malignant disease of the larynx. The intralaryngeal method, with some extremely rare exceptions, is absolutely unsuitable for the radical extirpation of malignant disease of the larynx. After opening the larynx the affection is generally found much more advanced than appeared from laryngoscope inspection. The advantages sink into insignificance in comparison with the dangers which loss of precious time and undue postponement of really radical operation brings about.

In cases of intrinsic malignant disease in which the diagnosis is made when the disease is not too extensive, thyrotomy and thorough removal of the growth with a sufficient circumference of healthy tissue is an ideal operation.

Partial extirpation of the larynx in which no less than one entire wing of the thyroid and possibly an arytenoid and parts of the cricoid cartilage are removed does not offer any greater technical difficulties than mere thyrotomy.

Total extirpation is an operation which cannot be described as a pleasant one, but in extrinsic malignant disease and particularly when it is situated on the posterior surface of the cricoid cartilage, the smaller operations are of no avail.

Sub-hyoid pharyngotomy is suitable for cases in which the disease starts from the epiglottis or from the aryteno-epiglottidean fold, and its technique is an easy one; but a curious fatality has reigned over this operation, the causes of which have not as yet been sufficiently elucidated.

Whilst the microscope may be of infinite value in deciding the question of diagnosis, its *rôle* in this question is that of a helpmate, but not of an infallible arbiter; the clinical observer must have the courage of his own opinions, and in suspicious cases perform an exploratory thyrotomy.

[13] Brit Med. Journ., Oct. 31.

[14] Ibid.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-EIGHTH ANNUAL MEETING, HELD IN ALBANY, JAN. 26, 27 and 28, 1904.

ALGERNON T. BRISTOW, M.D., of Brooklyn, president.

FIRST DAY, TUESDAY, JAN. 26.

PRESIDENT'S INAUGURAL ADDRESS.

DR. A. T. BRISTOW, in this address, called attention to the fact that the present membership of the state society was 1,135, and of the county societies, 5,680, and estimated the membership, if the two state organizations should combine, at 5,700. He declared that the time was ripe for putting an end to the strife of the past twenty-two years, and expressed the hope that not only would this be done, but that, in the near future, distinctive sectarian titles would no longer be recognized by the state.

REPORT OF COMMITTEE ON CONFERENCE.

DR. HENRY L. ELSNER of Syracuse presented this report, which has already been extensively printed by the medical press. He was followed by DR. A. JACOBI of New York, who urged all to forget the past in the pleasure of this supreme moment, when they were about to end all schisms. He then brought the question of consolidation and unity to a climax by moving the adoption of the following resolutions:

"*Resolved*, That the report of the Joint Committee of Conference be accepted, and that the proposed agreement for the consolidation of the Medical Society of the State of New York and the New York State Medical Association be and the same is hereby approved, and the president of the society is hereby authorized and directed to execute the same in the name and on behalf of the society, and the secretary is hereby authorized and directed to affix the corporate seal thereto; and be it further

"*Resolved*, That the committee of the society, heretofore appointed for the purpose of bringing about the consolidation, be and is hereby continued as such committee, with full power and authority to do whatever may be necessary to carry the agreement into effect."

These resolutions were unanimously adopted.

TIC DOULOUREUX AND OTHER NEURALGIAS FROM INTRANASAL AND EXCESSIVE ACCESSORY SINUS PRESSURES.

DR. SARGENT F. SNOW of Syracuse read this paper, based on an experience with 20 chronic cases. In every one of these there was present either intranasal pressure or an accumulation in some of the sinuses, and in none of the cases was it necessary to resort to excision of the nerve to obtain relief.

ENURESIS.

DR. GEORGE E. BEILBY of the State Industrial School at Rochester presented a paper on this subject. He had had exceptional opportunities for studying this condition, as it was present in from 4 to 10% of the population of that institution. His paper was founded on a study of the records of 75 well-marked cases. In only a few of the cases was there any marked phimosis, and the urine was almost uniformly normal. Of the 75 cases, 60 had nocturnal enuresis, 2 diurnal and 13 both nocturnal and diurnal enuresis. It was very significant that 71 of the 75 patients were confirmed masturbators. The author's conclusion was that the majority of the cases were dependent upon an abnormal irritability of the lumbar enlargement of the spinal cord. His treatment consisted in circumcision, for its mental and moral effect, the use of cold spinal douches, counter-irritation over the lumbar spine and the use of antispasmodics.

TOXEMIA IN TUBERCULOSIS OF THE CERVICAL LYMPHATIC GLANDS.

DR. ARTHUR W. ELTING of Albany reported a case of supposed Hodgkin's disease occurring in a patient twenty-six years old, in which, after the removal of the glandular mass by operation, the patient's condition became very critical, apparently from the entrance into the circulation of a quantity of toxins set free during the operation. Microscopical examination showed the glands to be distinctly tuberculous.

SYMPOSIUM ON DIABETES. PATHOLOGY.

DR. R. M. PEARCE of Albany opened this symposium by a discussion of the pathology. He reviewed the well-known theories and facts bearing on the etiology of this disorder, laying special stress on the recent work inaugurated by Opie. He pointed out that diabetes practically never occurred in the interlobular form of chronic pancreatitis, but in the interacinar form, in which the islands of Langerhans were often involved, diabetes was not infrequent. In 23 cases of cancer of the pancreas collected by the speaker glycosuria was present in only three, and in these cases there was distinct involvement of the islands of Langerhans. It was an interesting fact that when the pancreas was the seat of destructive processes these islands proved more resistant than the surrounding tissues.

PHYSIOLOGICAL CHEMISTRY OF DIABETES.

DR. DAVID EDSALL of Philadelphia, Pa., discussed this subject. He detailed certain experiments on birds and frogs, showing a relation between the liver and pancreas in the matter of the production of glycosuria. He was inclined to believe that there was a greater variety of sugars than was generally believed. In diabetes there might be a defect in glycogen construction, or an excessively rapid conversion of glycogen into sugar.

MEDICAL TREATMENT OF DIABETES.

DR. WILLIAM H. THOMSON of New York presented this paper. He said that he very seldom prescribed opium or its derivatives for diabetics, believing that they not only were incapable of permanent good, but were in themselves deleterious. As a matter of experience he had learned that persons suffering from diabetes who were not very obese often improved very decidedly under the administration of cod liver oil, and that they tolerated large doses of this remedy. Iron and arsenic were also beneficial. In severe cases he began the treatment by prescribing 15 gr. each of antipyrin and benzoate of sodium, four times a day, and, after a time, substituted 15 gr. of aspirin and 10 gr. of bismuth salicylate. Alkaline waters were often of benefit, but it should not be forgotten that all such waters were apt to cause emaciation if given for a long time.

GENERAL MANAGEMENT OF DIABETES.

DR. F. C. SHATTUCK of Boston read this paper. He favored the adoption at once of a rigid diet, but

in the mild cases after one or two months it was proper to cautiously test the patient's powers of tolerating starch. If diacetic acid and acetone were present in the urine, a radical change in the diet was dangerous. The speaker said that he had but little faith in the diabetic breads, personal investigation having shown their unreliability. If such a bread were made so as to be palatable it would not be a safe article of diet to continue for any great length of time. Diabetics should be warmly clad, and should lead a life free from fatigue and anxiety. The amount of exercise to be taken must be carefully graduated to the individual needs.

THE OCCURRENCE OF DIABETIC AND NON-DIABETIC GLYCOSURIA IN THE SAME INDIVIDUAL.

DR. HEINRICH STERN of New York was the author of this paper. It may be summarized as follows: Diabetic glycosuria is nothing more than the salient feature of the second stage of the diabetic deterioration. Glycosuria is a symptom of many other disturbances, both ectogenous and endogenous in origin. Duplex melituria is the result of two concurrent or intercurrent affections of dissimilar character having the one symptom, glycosuria, in common.

CONFLICTING CLAIMS OF GENERAL EDUCATION AND PROFESSIONAL EDUCATION.

ARTHUR T. HADLEY, LL.D., president of Yale University, addressed the society at its evening session, taking the above for his theme. He said that in the professional school there was a greater intensity of application, but this was attained at a sacrifice of some breadth of view. The sooner a man's brain began to turn to his life work the better, but the later a man's horizon became narrowed to the sphere of his special activities, the better also. The true system of education should help men to broaden their mental and moral horizon even while they were concentrating their vision on their specially chosen work. It should not be necessary to shorten the college course, but this should be made to include within it all of the scientific studies that it was practicable to embrace.

PRESIDENT'S ADDRESS, "THE PRESENT STATUS OF THE MEDICAL EXPERT."

DR. A. T. BRISTOW of Brooklyn delivered an address on this subject. He denounced the sneering criticisms of courts on the character of medical experts as libels on a noble profession, and declared that the evils, which all admitted to exist, were not related to the personal character of such experts, but were inherent in the antiquated and very faulty mode of legal procedure. In the first place, it was a most pernicious rule which placed the youngster just out of college and hospital on the same level with men in the profession full of years and rich experience. Another source of confusion was the hypothetical question, a device often so constructed as to prevent the witness from telling more than a part of the truth. If the legal profession showed a greater inclination to assist in this much-needed reform, it would be possible in time to have laws enacted which would secure the calling of properly qualified experts, and would make their testimony less biased than at present.

SECOND DAY, WEDNESDAY, JAN. 27.

THE SUBMERGED TONSIL.

DR. THOMAS J. HARRIS of New York read a paper with this title. He said that the submerged tonsil was usually of the hyperplastic form. The general symptomatology embraced attacks of peritonsilar abscess and of non-suppurative tonsilar inflammation, pain in the throat, the collection of mucus in the throat, with, perhaps, annoying cough or earache. The ordinary operation of tonsilotomy secured only the partial removal of the tonsil. The treatment which he recommended was the thorough separation of all adhesions of the tonsil and then the complete removal of the tonsil by means of the tonsilar punch. His own practice was to operate upon one tonsil at a time, at an interval of a week, doing the operation under cocaine anesthesia.

SOME PHASES OF CHRONIC LARYNGITIS.

DR. Z. L. LEONARD of New York presented this paper. He reported several different types of cases, and emphasized the general amenability of the affection to rest of the part, change of climate and, perhaps, of occupation.

A PLEA FOR ACCURATE KNOWLEDGE IN THE DIAGNOSIS AND TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA.

DR. J. F. MCCAW of Watertown pointed out the necessity for examining every case of chronic suppuration of the middle ear for obstructions in the nose and nasopharynx, and urged that the treatment, to be successful, must be based upon the pathological conditions found to be present.

IRRITABILITY OF THE BLADDER IN WOMEN.

DR. R. L. DICKINSON of Brooklyn read this paper. He classified the chief causes according to their frequency, as follows: (1) Inflammation of the base of the bladder, at times the after-result of gonorrhea; (2) uterine, ovarian and tubal trouble; (3) inflammations about the meatus; (4) urethritis; (5) hyperemias of masturbation; and (6) prolapsed conditions. Cystoscopy of the base of the bladder was easily done with the woman in the knee-chest position, but it was important, in the average woman, to make use of the smallest size of Kelly's instrument, and, after the nature of the trouble had been discovered, to carry on the treatment through a still smaller instrument.

FIFTEEN YEARS' EXPERIENCE WITH UTERINE FIBROIDS.

DR. W. E. FORD of Utica presented in this paper the results of a study of 162 cases, which had been followed long enough to know the ultimate result of treatment. This number included 37 single women. In his earlier years he had treated 96 cases by the galvanic current, using a pressure of 40 volts and from 50 to 150 milliamperes. Of these 96 cases, there were 7 in which both tumors and symptoms disappeared. In 26 there was a symptomatic cure. The accuracy of these statements was attested by the fact that 25 of the cases had been followed for five years or more. He was not at all in sympathy with those who attributed all sorts of dire results to the galvanic treatment, for most of them could be better explained in other ways; moreover, he had met with no accidents except in one case. In that one, the patient died of infection arising from an unrecognized gonorrheal salpingitis. He had tied the uterine arteries per vaginam in a number of cases but had soon abandoned the method as hazardous, difficult and useless. He had lately stopped the bleeding produced by uterine fibroids by the administration of suprarenal extract. He had operated upon 61 women for fibroids, 34 of them by Baer's method.

Probably not more than 20% of the cases of fibroids required operation.

RESULTS IN DIFFUSE SEPTIC PERITONITIS TREATED BY THE ELEVATED HEAD AND TRUNK POSITION.

Dr. Russell S. Fowler of Brooklyn said that before the employment of this position the mortality in this class of cases was 25%. The paper reported an experience with 100 cases, many of them being profoundly septic and almost moribund at the time of the operation. There were 67 recoveries. The general method of treatment consisted in sponging accessible infected areas and flushing successively with a mixture of equal parts of soda solution and peroxide of hydrogen, and with salt solution. Finally, the same procedure was employed in the pelvic and abdominal cavities, using a large Chamberlain tube, and a large tube was inserted in the pelvis and brought out through the abdominal wound, but was dressed separately therefrom. Immediately after operation the head of the bed was raised at least one foot. Of the 33 deaths, 17 occurred in the first twenty-four hours after operation.

ASTHENOPIA; A CLINICAL STUDY.

Dr. D. H. Wiesner of New York said that if the pain were near the eye the asthenopia was probably due to some refractive error, but if further away it was more likely to be of muscular origin.

(To be continued.)

ANNUAL MEETING OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT, JAN. 18, 1904.

A. L. STONE, M.D., SECRETARY.

Dr. E. O. Otis: I desire to express my appreciation of the exceedingly interesting and valuable paper which Dr. Sears has presented to us. A series of statistics, such as these, relative to the end results of pleurisy are of very great value, particularly with regard to the etiology of the disease. Whether or not all cases of primitive pleurisy will eventually be found to be of tubercular origin, as Damanoy and other French authorities seem to think, it is a fact attested by the experience of us all that many cases make a permanent recovery, even when the evidence points to a tuberculous infection. As illustrative of this I recall the case of a family of four children under my care some fifteen or more years ago. Two daughters died of pulmonary tuberculosis, one at the age of about seventeen years and the other somewhat older. A third girl developed acute pleurisy, for which I aspirated her several times. She made a complete recovery and subsequently went through the Boston City Hospital Training School for Nurses, became a nurse and remained well thereafter. The fourth member of the family, a young man in the Massachusetts Institute of Technology, also had acute pleurisy, for which he was aspirated. He likewise recovered and was enabled thereafter to devote himself to the arduous duties of a mechanical engineer and so far as I know is at the present time well and attending to his professional duties. From the family history I have always believed that these two cases of acute pleurisy were of tubercular origin, and yet they made complete and lasting recoveries. If, as we now know, pulmonary tuberculosis is curable in so many cases, why should not tuberculous pleurisy likewise be permanently recovered from? The useful and practical lesson to be learned from such a discussion as this, it seems to me, is that we should bear in mind the possibility of a tubercular origin in every case of apparent primitive acute pleurisy, and exercise great care not only in the treatment of the acute stage but in the convalescence, and see that the patient is placed under such hygienic conditions that he will, as speedily as possible, regain complete expansion of the lung — indeed treat the convalescent from acute pleurisy much as we treat an incipient case of pulmonary tuberculosis by the open-air method.

Dr. George B. Shattuck: Dr. Sears' paper serves once more to emphasize the importance of having in mind the question of tuberculosis in all cases of pleurisy which present themselves to the medical practitioner. The percentage of deaths and recoveries, and the period of intervention between the attack and recovery, or the reverse, undoubtedly would be found to differ in a series of statistics made up on hospital cases and on private patients, or those outside of hospital services, and certainly the difference would be marked in cases occurring in such material as presents itself at our City Hospital and in families such as the one referred to just now by Dr. Otis, from which he reported several cases of pleurisy, two with recovery. Certain pathologists, those of Vienna, for example, I believe, claim that the percentage of autopsies in which some tuberculous focus is not found, provided the examination be sufficiently minute and careful, is practically *nil;* in other words, that 97 or 98% of autopsies, minutely carried out, reveal the existence at some time or other of a tuberculous lesion.

Dr. William T. Councilman: Anatomically there was not very strong evidence in favor of the tuberculous character of all pleurisy. It is comparatively rare that a tuberculous pleurisy is the primary tuberculous lesion in the body and a point of departure for a further tuberculous infection. It cannot be said how frequently the pleurisies which leave behind traces of their presence in adhesions had been accompanied with effusion. With regard to the general frequency of tuberculosis at autopsy Dr. Councilman said that he did not regard it as too high an estimate to say that three-fourths of all individuals at autopsies had some tuberculous lesion in the body.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

J. W. COURTNEY, M.D., SECRETARY.

(Concluded from No. 7, p. 192.)

Dr. Magrath: Dr. Walton pleads for a greater precision, which, it seems to me, would be very greatly advanced by the use of the terms deviation and deviate to designate conditions of departure from the type in any direction. The condition of degeneration in cells and in tissues may be a normal condition. A degeneration of the omphalomesenteric artery, changes in blood vessels which accompany the alteration in circulation from the fetal to the adult type, is accompanied by degeneration of tissues; therefore, degeneration in this morphological sense is normal. The absence of degeneration, persistence of what for the fetal conditions is normal, would be a deviation of type, and in itself would be an atypical condition, in that sense a degeneration, as departing from the normal. I feel grateful to Dr. Walton for making this plea for greater precision and suggesting the means to the end.

Dr. Sawin: I am very glad to be present because of the interest I feel in the kind of work

done by the members of this society. I was particularly interested in Dr. Walton's paper, and it seems to me there is a vast amount of material in this state in connection with the penal institutions that is not utilized, particularly in the state prison and the reformatory at Concord. It seems to me, also, that some members of your society ought to make efforts either to get on the commission or have some connection with those institutions to study the material. While I was at the state prison seven years I was more or less interested in the work, but did not feel competent to pursue the study as I should.

At a recent conference on charities, at Buffalo, N. Y., Dr. Laub of Dannemora claimed that 20% of the inmates of state prisons are insane, and Dr. Robertson of Elmira Reformatory recommended the addition of an experienced alienist to the prison department, to regularly visit each penal institution, and thus minimize dangers to society by transfer to insane hospitals of criminals whose terms are about to expire.

DR. W. E. PAUL: The consideration of the word deviate as presented by Dr. Walton will serve one good purpose in that it will clear in one's mind the significance of degeneracy. That a new term is needed as an equivalent of degeneracy may be questioned. The uncertainties as to the meaning of degeneracy and the varying use and ambiguities of the term should influence us to fix more firmly and clearly the meanings the word should convey, rather than be accepted as a demand or justification for a new word.

It seems to me that at present any use of the term degenerate carries with it some reference to mental qualities always in the nature of a blemish. The long list of anatomical deviations from the ideal normal called stigmata should be observed and described; but one should not at once assume that the individual thus marked is inefficient or peculiar physically.

I do not believe Dr. Walton can assure us that deviate, if adopted, would escape all the difficulties attending the use of degenerate. Perhaps all this discussion really represents a call for more terms, or subheadings, in the general subject, a better classification and a more systematic arrangement of all the branches included under degeneracy. Deviate and deviation would, it seems to me, be admirable terms to apply to anatomical variations.

DR. W. E. FERNALD: It seems to me a change in the nomenclature, as Dr. Walton suggests, would tend to clear the air somewhat in that it would help us to recognize that certain variations in type are normal. I was consulted, a few days ago, by an educated woman who came to see me in great distress because she had discovered that her eleven-year-old daughter had a Darwinian tubercle. She had consulted various physicians and was in a distressed condition. It seems to me that we forget that every individual is the sum of his ancestors and that the tendency for nature to seek a common denominator explains some of the variations from the normal type.

DR. J. W. COURTNEY: I have long been interested in the subject which Dr. Walton has so convincingly presented to the society this evening. At the present time it may be said that the popular conception of the term degenerate has been attained largely through the propaganda of pseudo-science and the yellow press. With the idea of doing something toward establishing a more rational view of the matter I some time ago wrote the following for a semi-popular medical work: "At the present day we frequently hear the term 'born degenerate' used to designate some unfortunate who happens to be the possessor of a high-arched palate, misshapen ears or an asymmetric skull, and who, under the stress of circumstances, betrays some mental or moral obliquity. The argument is that nature, while inflicting upon this individual outward stigmata of her freakishness, has been equally unkind in the matter of moral and intellectual endowments, and that he, in sinning against well-recognized laws, is simply the victim of his own vicious organism. To argue thus is fallacious in the extreme, for it throws a most unwarrantable burden upon nature, and leaves absolutely nothing to the account of two factors which are of vast importance in determining the mental, moral and social status of the individual — namely, education and environment. In proof of this one has only to seek in the circle of his own acquaintances. This all leads, however, to the matter of heredity and its influence upon a person's nervous and mental welfare. Upon this point may be quoted the following admirable statement of the facts in the case by Dr. James J. Putnam: 'Fortunately for the educational outlook, the evidence has begun to accumulate that a morbid inheritance is not the inevitably crushing and baneful thing that it has been thought. We come into the world, each one a being of limited capacity, but in other respects free to become what circumstances make us, and responsible, to the extent of our capacity, for our lot. We bring no ticket-of-leave which stamps us as drunkards or maniacs on probation, but we do bear, in the histories of our ancestors, a certificate that hints by what efforts and by what avoidances we can make ourselves reasonable successes in our respective lines. There is no original sin, and not even, as it seems to me, original propensity, but only original capacity and original limitation, and even limitation is only another name for latent capacity.'"

DR. P. C. KNAPP: I think we would all agree that there is something in degeneracy; that a degenerate as depicted by Morel is a being who cannot be exactly described or classified, yet whose existence can be in a measure recognized; just as we would all agree that there is something in physiognomy, without accepting all the doctrines of Lavater, and that there is something significant in the shape or form of the hand, without going into the extravagances of Des-

barrolles; but the work done by many pseudo-scientific men in describing the so-called stigmata of degeneracy seems extravagant, while the incessant measurings to get the quarter or half-inch deviation from the accepted standard suggest Cowper's lines:

> "The toil of dropping buckets into empty wells
> And growing old with drawing nothing up."

I think, therefore, Dr. Walton has done a service in bringing forward this substitute, which is open to the objection that it is too general. We are all deviates, and the perfect type is one which does not exist. It is simply a question of averages, and the departure from the average, whether in height or weight or color, is not in any way to be regarded as an indication of disease or abnormality. Some of the stigmata of degeneration which Lombroso, Peterson and others have enumerated may fairly be regarded as such stigmata; they are the indication of a morbid heredity, a decline of the individual; but others may be due to acquired disease in the individual, others still to mere mechanical influences, as the amputation of the hand in utero. An abnormally shaped palate which was due to some acquired disease in the nasal tract would count as a stigma of degeneration as much as some marked moral or physical perversion which was an actual indication of hereditary taint. I think Dr. Walton's term is very much more appropriate, but it is open to the objection of being too general.

Dr. Walton, in closing: It is not proposed that the word degeneration be abandoned, but that its use be curtailed. It should not be supplanted, but supplemented. Only such stigmata as are undoubtedly deteriorative should be called stigmata of degeneration, and the word degenerate should be applied only to individuals in whom the signs of deviation are of such character or in such number as really to indicate degeneracy, mental, moral or physical. All individuals deviate from the average normal, and if the proposed nomenclature be accepted, a person might be said, for example, to be a deviate but not sufficiently to be placed in the degenerate class.

Recent Literature.

Physical Diagnosis of Diseases of the Chest. By Richard C. Cabot, M.D., Physician to Out-Patients, Massachusetts General Hospital, Assistant in Clinical Medicine, Harvard Medical School. Second Revised Edition. Wm. Wood & Co.

Successive editions of a book may be said to justify themselves in the demand to which they furnish the response, and this manual, surely, in quality or presentation of subject matter, needs no higher compliment. The revision, however, has not been made with that care that might reasonably have been demanded. Obvious errors in proofreading, an occasional crudity of diction, a carelessly compiled index, are all details which, even if excusable in a hastily prepared first edition, are certainly not to be tolerated in the second. Thus, for example, pneumohydrothorax has become pneumoserothorax, but figures also as seropneumothorax and sero-pneumothorax, while to hydrothorax has been granted no variety from its old nomenclature. Those of the illustrations which are reproductions of photographs or radiographs are either poorly or atrociously executed, and there are several which, good or bad, might well have been spared.

Of new matter the only essential addition is a short and comprehensive description of apparatus and methods used in the testing of blood tension.

A Textbook of Legal Medicine and Toxicology. Edited by Frederick Peterson, M.D., Chief of Clinic, Nervous Department of the College of Physicians and Surgeons, New York; and Walter S. Haines, M.D., Professor of Chemistry, Pharmacy and Toxicology, Rush Medical College, in affiliation with the University of Chicago. Two volumes of about pp. 750 each. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

We have already commented in our issue for Sept. 3, 1903, upon this work on Legal Medicine and Toxicology as a whole, with special reference to the first volume, which at that time had alone appeared. Twenty-four contributors write for the second volume, and, as stated in the preface, their papers have been inserted practically without editorial change, which, with its evident possibilities of repetition and confusion, the authors regard as the wiser plan, inasmuch as individual responsibility more than compensates for such possible defects.

The second volume is comprised in two parts, the first of which is concerned largely with the medico-legal aspects of sexual matters. Part II takes up the general questions of toxicology as applied to medico-legal investigation, a matter which has been of increasing importance during the past few years. The list of authors of the various articles is a guarantee of the carefulness of the work. A section of the book which should be of much value, and so far as we know is unique in the form here presented, is that concerning laws relating to the insane, being a digest of the statutes of all the states and territories and of the District of Columbia relating to the commitment, care and custody of the insane. To have this information, ordinarily somewhat difficult to obtain in concise form, brought within the limits of about one hundred pages cannot fail to be extremely useful.

This volume, like its predecessor, is adequately illustrated with colored plates where necessary, as well as with the ordinary text cuts. We have no doubt the volumes will fill the place for which they are designed, namely, to provide for physicians and lawyers "a fairly comprehensive survey of forensic medicine in moderate compass."

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PREMATURE BURIAL.

A BILL has been presented to the Massachusetts Legislature, now in session, entitled an "Act to restore Life, and to prevent Premature Encoffinment, Burial, or Cremation," the provisions of which are of sufficient interest to the medical profession to warrant careful consideration. The act reads as follows:

SECTION 1. That no person shall place the body of any human being in a coffin, casket or other receptacle by which air or light is excluded, or by which free movement is prevented, or bury or cremate such body except after a certificate of death as hereinafter provided.

SECTION 2. Whenever any person in any city or town apparently deceases, the board of health of said city or town, or the selectmen of such town, if no board of health exists, shall within six hours of such event being known be informed of such apparent death by any person or persons having the body in charge.

SECTION 3. As soon as is possible after such information the board of health, or said selectmen of such city or town in which such apparent death occurred, shall cause an examination of such body to be made to determine whether death is real or only apparent, and certification of the fact of death shall not be made until the following facts are established by actual tests, wherever possible, viz.: One, Heart sounds entirely absent, the test being by the stethoscope. Two, Respiratory sounds entirely absent. Three, Temperature of the mouth same as that of surrounding air. Four, A bright needle plunged into the body of the biceps muscle, left there, shows no sign of oxidation. Five, Intermittent shocks of electricity at different tensions passed by needles into various muscles and groups of muscles give no indication whatever of irritability. Six, Fillet test applied to veins of the arm causes no filling of veins on distal side of fillet. Seven, Opening of vein shows the blood to have undergone coagulation. Eight, Subcutaneous injection of ammonia causes a dirty brown stain indicative of dissolution. Nine, Careful movements of the lower jaw and of lower extremities and of occipito-frontalis indicates the presence of rigor mortis. Ten, Scarlet line (diaphanous test) is absent. Eleven, Decomposition has set in. And provided, further, that, if there is an absence of any of the signs of death except decomposition, all known means of resuscitation shall be tried while such signs are absent.

SECTION 4. The tests provided for in Section 3 shall be made by not less than two doctors of medicine in person, who shall have lawfully received the degree of M.D., one of whom shall be appointed by the board of health, and said doctors shall certify to the several tests made with the result of each test.

SECTION 5. No provision of this act shall be construed to prevent any means being used by any person to restore life to the supposed dead body.

SECTION 6. Every city and town shall provide suitable rooms for the carrying out of the provisions of this act, wherein tests may be made. Said rooms shall contain conveniences for resuscitation of bodies and for funeral services: *provided, however*, that the provisions of this act shall preferably be carried out in the domicile of the supposed deceased, his relatives and friends; but in no case shall any provision of this act be omitted. The expense of said rooms shall be included in the annual expenses of the city or town and provided for in the annual appropriation of money for city and town purposes.

SECTION 7. The fee for the services provided for in Section 3 shall be fair and reasonable, and shall be fixed by the board of health and be at the expense of the city or town.

SECTION 8. Any violation of this act on the part of any person responsible therefor shall be deemed a crime, and shall be punished by a fine of one thousand dollars or by imprisonment for one year, or by both such fine and imprisonment.

SECTION 9. All laws or parts of laws inconsistent with this act are hereby repealed in so far as they apply to this act, but no further.

SECTION 10. Copies of this act shall be conspicuously posted in all cities and towns of this Commonwealth by their respective boards of health.

The peculiarity of some of the foregoing provisions is worthy of comment. If a householder, or any one having charge of the body of a deceased person, does not inform the board of health of a town as to the fact of such death within six hours after its occurrence, he is liable to a fine of $1,000, or imprisonment for one year, or both fine and imprisonment. Ignorance of

law is no excuse for violation, but, nevertheless, the penalty here seems severe.

According to the terms of Sections 3 and 4 two physicians must see each dead body, armed with the following paraphernalia — stethoscopes, thermometers, bright needles, electric batteries, fillets, lancets and syringes, and if any one of the eleven tests or signs named in Section 2 do not respond, then the physicians must continue "all known means of resuscitation, while such signs are absent." If the attending medical men become weary and cease their exertions, a fine of $1,000 awaits them.

The expense of providing rooms for such examination as is required by this act is to be borne by the cities and towns. This, however, is but a small portion of the expense of carrying out the provisions of the act. A "fair and reasonable fee," such as is named in Section 7, for making all of the eleven tests described in Section 3 and of keeping oneself supplied with all the necessary apparatus for making them, should not be less than $5 for each physician or $10 for the two, and this would entail upon the cities and towns a new tax of about a half-million dollars annually, since the yearly number of deaths is about 50,000.

The demand for such legislation arises from the morbid fear which some people have of being buried alive, an occurrence which is less likely to happen than that of being struck by lightning. Without presuming to doubt the rare occurrence of such an event, we can hardly deem it reasonable to enact such legislation as is here demanded for its prevention.

Professor Brouardel, a high modern authority on medical jurisprudence and director of the Paris Morgue, admits the possibility of premature burial in rare instances,[1] but adds, except a single case which he cites: "None of the cases as such are very conclusive. The newspapers describe them, but no medical man has been a witness. When I read of such a case in a newspaper, I make an inquiry, as other physicians have done. I write to the mayor or to the health officer and ask him if the facts are genuine. The reply I am wont to receive is that the story is quite unknown in that part of the country whence it is supposed to have come, or that the person mentioned is not dead, and has not been placed in a coffin."

In several cities of southern Germany, establishments have existed for many years (since 1821 in Munich and for more than a century in Weimar) where every body of a deceased person is exposed for at least two days. The writer visited two of the cemeteries in Munich, a few years since, where these reception houses exist, one near the center of the city, another outside the city across the river Isar, and learned that out of the many hundreds of thousands of corpses that have been brought to them during these many years, not one has ever shown signs of life.

Most of the published statements upon this subject consist of a curious collection of sensational stories copied from public newspapers, traditions, fables and falsities, with here and there a grain of wheat among the chaff. Considered as additions to science they have but little value.

Looking at the subject, however, from the standpoint of protection from crime, there is room for improved legislation, such as was once asked for by members of the Massachusetts Medical Society. It is desirable that the small percentage of deaths which occur without the cognizance of an attending physician, but are not apparently due to violence, should receive the attention of some medical official clothed with authority to issue a certificate of death. For this purpose, however, it would not be necessary to enact legislation of so cumbrous and stringent a character as that required by the provisions of Senate Document 69.

[1] La Mort, et la Mort Subite, p. 35.

A MEDICAL MEMBER OF THE PANAMA CANAL COMMISSION.

The Committee on Medical Legislation of the American Medical Association, consisting of Drs. C. A. L. Reed of Cincinnati, Wm. L. Rodman of Philadelphia and Wm. H. Welch of Baltimore, is vigorously urging the appointment of a representative of the medical profession as a member of the Panama Canal Commission. The National Legislative Council of the Association, consisting of the above committee and one representative from each state medical association, at its regular session held in Washington, Feb. 11 last, adopted the following:

Whereas, a well-known unsanitary condition prevails on the Isthmus of Panama, as shown by the large percentage of sickness and death among the laborers engaged in the previous work on the Panama Canal, and in view of the fact that the successful prosecution of future work on the canal must largely depend upon the sanitary administration, which includes the prevention of sickness and the saving of the lives of the laborers, quite as much as upon the solution of the great engineering problem:

Resolved: That a representative of the medical profession who is an authority upon the advanced methods of investigating the causes and of the prevention of disease should be appointed a member of the Panama Canal Commission, that he may have authority to protect the health and thereby save the lives of persons engaged to work on the proposed Panama Canal.

A letter has been addressed to the President of the United States by the Committee of Medical Legislation enclosing this resolution, advocating the appointment of a medical member of the Panama Canal Commission, and suggesting Col. W. C. Gorgas of the United States army for the place. The committee also asks for a personal hearing before the commissioners are finally selected.

The commission is to consist of seven members, of whom four, under the law, must be engineers. As we write, it is generally understood that a majority of the members have been already selected. The Congress very properly recognized that engineering problems are the essential ones to be solved at the Isthmus, and as properly that the necessary technical ability to be efficient should be clothed with full authority. If the sanitary problems connected with the construction of the canal are also of prime importance the same consideration applies in a measure to them. Past experience has shown that the sanitary problems at the Isthmus, if secondary in any degree to the engineering problems, are certainly not far behind these latter in importance. We have no desire to exaggerate the unhealthfulness of the Isthmus or of any part of Central America. It is doubtless as untrue that the whole line of the canal is one unbroken zone of plague as that it is a region foreordained as the white man's sanitarium. Rather favorable statistics have been quoted as to the percentage of sickness and mortality rates among employees in recent years and working at a higher altitude. However this may be, we think the unprejudiced and those most competent to judge will agree that the construction of this canal at that site cannot be carried to a satisfactory and creditable conclusion without a constant, an intelligent and forceful control of all hygienic and sanitary considerations and details. It is not enough that good advice should be available; there should also be prompt and efficient execution.

In suggesting the name of Colonel Gorgas for the commission the committee of the American Medical Association has selected a person well qualified to secure the realization of these general considerations. His work as sanitary officer of Havana in clearing that city of yellow fever is well known to the medical profession at large. He is no less favorably associated with recent investigations in regard to malaria. He shared with Maj. Walter Reed the honor of a recommendation by the Secretary of War, in his report for 1902, for special recognition of services from the government of the United States. Colonel Gorgas was born in Alabama, and is about fifty years of age. Much of his military service has been at stations on the Gulf coast. He is at present stationed at Governor's Island, New York Harbor, as chief surgeon of the Department of the East.

Colonel Gorgas has theoretical knowledge, technical skill and practical experience in sanitary matters; moreover, these are combined with a knowledge of men and affairs and a tried administrative ability. This combination of characteristics would seem to constitute what is required of at least one member of the canal commission.

In addition to safeguarding the health of employees, such a commissioner would find in the sphere of his functions such problems as securing a better understanding than now exists of the etiology of Chagres fever, and the gradual establishment of such conditions on the Isthmus as would give guarantees against its becoming later, when the canal is open to traffic, a distributing center to the eastward of such a disease as yellow fever, and to the westward of cholera and plague.

Since the above was written and in type, the commission has been made up without a medical representative. Whatever method may be favored for securing the sanitary requirements of the situation, we see no occasion to change our statement. The disappointment of the medical profession that no sanitarian has been placed on the commission may be mitigated, though not removed, by the report that the services of Colonel Gorgas are likely to be retained in an advisory capacity.

MEDICAL NOTES.

AMERICAN GYNECOLOGY. — The January number of *American Gynecology* was destroyed in the fire which recently visited Baltimore.

BURNING OF AN INSANE HOSPITAL. — It is reported that the Racine, Wis., County Hospital Asylum was burned on the night of Feb. 19.

There were at the time under treatment 133 patients, who were taken from the building in safety.

A Centenarian. — Miss Clarissa Merrill died in Utica, N. Y., Feb. 28, in her one hundred and first year. She retained her mental power essentially unimpaired up to the end of her life.

In Honor of Dr. D. B. St. John Roosa. — A dinner was given at Delmonico's, New York, Tuesday evening, March the first, in honor of Dr. D. B. St. John Roosa and to commemorate the twenty-one years since the inauguration of post-graduate medical instruction in this country. Dr. William Osler of Baltimore presided.

Printers and Editors. — The following statement, taken from the columns of our contemporary, the *Journal of the American Medical Association*, expresses our present point of view: "That Chicago publications are not the only ones that are embarrassed sometimes by strikes in the mechanical department, is evidenced by the apology for lateness of issue which the *Boston Medical and Surgical Journal* gives in a recent number. Our contemporary has our sympathy, as has also the *Journal of Medical Research*, which likewise has the misfortune (we use the word only in its application to the existing delay) to be issued in Boston. A card announces that the *Index Medicus* is also a sufferer, the annual indexes for 1903 being still unfinished. We wish our Boston friends speedy release from their handicap. Our sympathy is born of experience."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Feb. 24, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 31, scarlatina 29, typhoid fever 6, measles 214, smallpox 0.

The Usual Antivivisection Bill. — Hearings have been held this week (March 4) before a committee of the Massachusetts Legislature on the usual bill for the restriction of vivisection.

Typhoid Fever in Franklin, N. H. — It is reported from Franklin, N. H., that a number of cases of typhoid fever have appeared in that city, supposed to be due to the use of river water for household purposes. This was necessitated by a temporary deficiency in the regular water supply.

NEW YORK.

A Bill to Legalize "Optometry." — Much protest has been evoked by a bill recently introduced into the Legislature designed to give legal status to the business of opticians ("optometry," so-called) as a profession separate and distinct from other branches of medical science, and the State Medical Society, working through the sixty county societies represented in it, is conducting a vigorous campaign against the measure. Three years ago a somewhat similar movement was made in the Legislature of Massachusetts.

The New York Eye and Ear Infirmary. — It is announced that the New York Eye and Ear Infirmary has not been able to meet expenses, with the unfortunate result that there is now a possibility of its entire discontinuance. It is to be hoped, however, that some less radical course may suffice either through a certain restriction of the hospital work or, what is much more to be desired, through the increased financial support from public-spirited citizens. The institution is an old one; it has done admirable work in the past; and there is an increasing need of its services to the poor in the future.

Miscellany.

MEDICAL UNION NUMBER SIX.[1]

"Medical Union Number Six takes for a theme the growing arrogance and unbridled excesses of labor unions. It casts a long look ahead, and, in the form of fiction, describes in biting satire a condition of things that might be the logical outcome of unrestrained labor unionism carried to the extreme toward which its dominant impulse of to-day is directing it. The book is at once a protest and a warning.

"The scene of the story is laid in New York, in the middle of the twentieth century, when the country has become completely unionized. Even the ministers and doctors are banded together in unions. One, Dr. Schneider, joins Medical Union Number Six, and the story presents the theories, principles, working methods and rigid rules of that organization as it is controlled by its riding delegates, and relates the experiences of the doctor under the new order of things. It appears that the union doctors work only six hours a day, and one man is permitted only to treat ailments in certain designated parts of the body. Patients must take such doctors as may be sent to them from union headquarters, and no doctor is allowed to work beyond the prescribed hours for his tour of duty, or to treat anything outside his specified field of operation — the throat, the chest, the extrem-

[1] Medical Union Number Six. By William Harvey King. 16 mo. 60 pp. The Monograph Press, 25 West Broadway, New York.

ities, etc. — no matter how serious a case may be or what emergency may arise. Non-union or unfaithful doctors are promptly killed, and union undertakers and clergymen refuse their services for those who are so heedless as to die in the hands of a non-union doctor.

"A tragedy ends the story. Because Dr. Schneider lets a patient die rather than transcend a union rule there is a popular uprising against the Medical Union. The physicians go on a strike, but the people hold out, and finally the union, in order to bring the public to its senses, causes an outbreak of the bubonic plague, which devastates the country. Then the people humbly sue for relief, and the strike is declared off, after millions of men, women and children have died, and towns and cities have been wiped out. 'Of course,' the story says in conclusion, 'there was nothing left for the doctors, but the principles of the union were maintained.'

"The work is not pretentious, either in size or in plot, but into its pages are crowded a great deal that is food for serious thought. Many of the ideas, as set forth, are, of course, intentionally extravagant, as befits satire, but, after all, they are not altogether so extreme as might seem at first blush. Almost a parallel for some of them may be found in recent union disturbances in Chicago, when churches and funerals were mobbed, and the dead with difficulty were buried, and in other affairs in Connecticut, where strikers stopped funerals and would not allow graves to be dug.

"A vein of humor, grim though it be, pervades the book, but underlying that is a serious purpose that marks the real aim and worth of the work. Its hits are so palpable and so merciless that they draw blood, and are not likely to be very much relished by those at whom they are aimed."

The above is an abstract of a little brochure just received. It has an especial interest, as the JOURNAL is at present suffering from a strike of compositors and pressmen, the latter going out in sympathy with the former, although contrary to a contract of their own union. Perhaps these pages may meet the attention of strikers as well as those of the stricken. It is a very fair *reductio ad absurdum*.

Correspondence.

"ARRESTED TUBERCULOSIS."

SHOULD UNPROVED CASES BE THUS RECORDED?

BOSTON, Feb. 23, 1904.

MR. EDITOR: At this time when Boston physicians are specially interested in the control of Tuberculosis, the statistics of institutions for its relief are of unusual importance. May I therefore be allowed a few words in the JOURNAL on this subject?

A report has recently been published on "Arrested Tuberculosis. Subsequent histories of 79 arrested cases treated at the Sharon Sanitarium from 1891 to 1902." [1] In this paper the term "arrested" is explained by Dr. V. Y. Bowditch as including "all those cases in which abnormal outward symptoms have disappeared." He says: "Seventy-nine of these 164 cases were recorded as 'arrested,' a percentage of 48.17+ of all the phthisical cases," and still further, "Of these 79 cases, . . . 12, or 15.2%, have died since leaving the institution, after varying intervals of comparative health."

An inspection of the table of the 79 cases of arrested Tuberculosis shows that the diagnosis of phthisis was not confirmed by the presence of Tubercle bacilli or the use of Tuberculin in more than one-half of the cases (41 out of 78).[2] In justification of their inclusion it is said that "only those cases have been taken which experience teaches us usually develop later more definite signs of disease under unfavorable conditions." Not only at Sharon, but also in other sanitaria, both in this country and abroad, Tubercle bacilli are found in the sputum in only about one-half the cases of incipient Tuberculosis reported as cured [3]; and in the remaining cases the use of Tuberculin as a routine is not mentioned. The cases at Sharon, therefore, may fairly be taken as an example of those from other similar sanitaria.

An inspection of the physical signs in these 41 cases shows, as might be expected in incipient Tuberculosis, that practically all of them had very slight changes in one or both apices, such as suggestive modification in the respiration, localized râles or slight deviations from the normal percussion note, singly or combined. These physical signs in conjunction with the history of the cases suggest, but it does not seem to me prove, the existence of pulmonary Tuberculosis. Within the past few years it has been recognized that other bacterial infections of the respiratory tract may closely resemble Tuberculosis, and the history of the case and the physical examination cannot with certainty be relied on for diagnosis. The Tuberculin injection in cases suspected of pulmonary Tuberculosis without Tubercle bacilli in the sputum is subject to the error of a reaction in a certain proportion of apparently healthy individuals. The absence of such a reaction, however, in patients with pulmonary symptoms without Tubercle bacilli in the sputum excludes Tuberculosis as conclusively as our present means of diagnosis allows. Prof. R. Koch,[4] in his address at the British Congress on Tuberculosis in 1901, speaking from an experience of over three thousand cases in which Tuberculin had been used under his supervision, said: "The Tuberculin test is of special value in judging of catarrh of the apex pulmonis without Tubercle bacilli in the sputum, especially when influenza is prevalent, because then cases pretty often occur which to the eye of the clinical observer exactly resemble Tuberculosis but are not that. Among our numerous patients suffering from catarrh of the apex pulmonis there were almost 15% in whom no reaction took place; and in all the cases which could be observed long enough, the further course of the disease confirmed our opinion that they were not cases of Tuberculosis."

The validity of a reaction after the use of Tuberculin for the diagnosis of pulmonary Tuberculosis in any series is questionable when we consider the proportion of apparently healthy individuals who have been shown to have latent Tubercular foci. MacFadyen,[5] for example, found Tubercle bacilli by animal inoculation in the mesenteric glands in 25% of 20 cases unsuspected of Tuberculosis. P. Baumgarten,[6] excluding cases with Tuberculosis as a cause of death, said that he had found latent Tuber-

[1] Journ. Am. Med. Ass., Nov. 14, 1903.

[2] One case (No. 49) is omitted because there are no data concerning the presence or absence of Tubercle bacilli or the Tuberculin reaction.

[3] Reports from different sanitaria are very meagre concerning Tubercle bacilli or Tuberculin reaction in apparently cured cases. In some no mention of either is made. Among those giving data are:

Brown (L.): Adirondack Cottage Sanitarium. J. Am. Med. Ass., Feb. 21, 1903. In 76 incipient cases, T. B. found in 26%.

Elliott: Am. Med., Phila., 1903, v, 294-6. Of 96 cases apparently cured, T. B. found in 64%.

Pickert: Zeit. f. Tuberculose, 1902, Bd. iv. Collected statistics from nine sanitaria, T. B. found in 45.7%.

Engelmann: Results of Open-Air Treatment of Consumption, Berlin, 1901, p. 12. Of 393 patients in the first stage from five sanitaria, T. B found in only 25.4%.

[4] Trans. Brit. Cong. on Tuberculosis, 1901, p. 93.

[5] Brit. Med. Journ., 1903, ii, 129.

[6] Volkmann's Vortrige, 218.

cular foci in about one-third to one-fourth of his autopsies. His results have been abundantly confirmed, and explain the proportion of apparently normal individuals who react to Tuberculin.

The recognition of Tubercle bacilli in the sputum, therefore, must be regarded as the only infallible indication of Tuberculosis of the respiratory tract.

In the work at the Massachusetts General Hospital I have been impressed with the constant prevalence of influenza and its close resemblance in many cases to pulmonary Tuberculosis, not only in apex catarrh, but also in signs of persistent pulmonary solidification. These cases have shown influenza bacilli in practically pure culture in the purulent and at times bloody sputum and Tubercle bacilli have been absent after careful and repeated search. In some of my earlier work the mistake was made of not subjecting all such cases to Tuberculin, but in later cases there has been no reaction.

These observations have led to the belief that some at least of the incipient cases, without Tubercle bacilli, recorded as "arrested" in this and other sanitaria may not be Tuberculosis. Unlike Tuberculosis these cases do not tend toward a fatal termination, but rather remain stationary or slowly progress toward recovery. If such cases, therefore, are included among the 41 unproved cases in the Sharon report, their course should be more favorable than that of the 37 remaining cases with positive evidence of Tuberculosis. On tabulating the cases into two classes, according to the presence or absence of proof of Tuberculosis, there is much to confirm this possibility.

CLASS I.[7]

	With T. B. or Tub'l'n. react.	Excell.	Good	Fair	Poor	Dead	?	Total	Mortality
		2	21	1	1	9	3	37	24%

CLASS II.[8]

Without T. B. and no mention of Tub. react.	0	34[9]	3	0	3	1	41	7%

The cases in both classes are much alike in physical examination, but a mortality more than three times as great among the proved cases (Class I) strongly suggests other organisms than Tubercle bacilli as the cause in some at least of the unproved cases (Class II). This difference in the mortality is even more striking when one considers the three fatal cases in Class II. One of these (No. 45) had "mitral disease" and another (No. 52) had been "without cough for some time; died suddenly." The more favorable result in these unproved cases obviously raises the percentage of those with arrested disease.

A more favorable result in cases without Tubercle bacilli in the sputum is shown not only in the Sharon series but also in the statistics of other sanitaria. It is usually ascribed to treatment in the very inception of the disease, which is manifestly of great importance. Brown,[10] speaking of the results in the Adirondack Cottage Sanitarium, said that "when the diagnosis was made before Tubercle bacilli were found in the sputum before ulceration had begun, the chances for recovery were at least twice as good and on the whole seemed many times as good." What proof have we, however, that the symptoms in such cases are not due to infection with other organisms?

The great value of the sanitarium treatment of Tuberculosis is beyond question and is demonstrated by an "Excellent" or "Good" result in 23 of the 37 cases of proved Tuberculosis in the Sharon report. It seems to me, however, an error in classification in this and other sanitaria to include unproved cases among those with "Arrested Tuberculosis."

Truly yours,

FREDERICK T. LORD, M.D.

[7] Four cases (Nos. 21, 74, 75, 79) though recorded in the table as negative for T. B. are included in Class I, No. 21 because of the finding of T. B. later, the others because of positive Tuberculin reaction.

[8] In one case in the series the examiner appears doubtful of the presence of Tubercle bacilli (No. 48 + ?), in another of their absence (No. 29: 0 ?). Both of these cases are placed in Class II.

[9] One case (No. 19) is classed as "Good," as this is the condition mentioned under "Remarks."

[10] Brown (L.): Loc. cit.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 13, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York	3,908,644	1,578	487	19.64	25.03	3.55	2.85	.25
Chicago	2,021,086	661	171	18.45	26.48	1.66	2.11	.60
Philadelphia	1,407,968	—	—	—	—	—	—	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	244	68	28.68	20.49	.81	3.69	.41
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	157	56	21.02	21.65	2.55	.64	7.64
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	84	30	13.09	25.00	2.38	12	—
Boston	617,950	201	48	17.91	20.40	2.00	1.49	.50
Worcester	136,925	41	13	12.19	12.19	2.44	—	2.44
Fall River	119,349	46	18	21.74	28.26	6.52	8.69	—
Lowell	104,402	33	15	6.06	42.42	3.03	—	3.03
Cambridge	100,998	22	5	4.54	18.17	—	—	—
Lynn	73,875	25	7	25.00	—	—	—	—
Lawrence	72,348	19	2	31.58	31.58	5.26	5.26	5.26
Springfield	72,020	14	2	21.43	21.43	—	—	—
Somerville	70,413	32	11	12.50	9.37	3.12	—	—
New Bedford	68,863	24	6	12.50	16.67	—	—	—
Holyoke	50,338	13	3	7.69	7.69	—	—	—
Brockton	46,901	9	1	11.11	—	—	—	—
Newton	39,310	4	—	50.00	25.00	—	—	—
Haverhill	39,061	8	3	12.50	25.00	—	—	—
Malden	37,205	8	1	25.00	12.50	—	—	—
Salem	37,188	8	3	12.50	25.00	—	—	—
Chelsea	38,499	9	3	—	—	—	—	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	10	—	20.00	20.00	—	—	—
Everett	30,309	6	3	16.67	—	—	—	—
North Adams	29,201	9	0	22.22	11.11	11.11	—	—
Quincy	26,798	5	1	40.00	20.00	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	3	1	33.33	33.33	—	—	—
Brookline	23,576	6	—	—	33.33	—	—	—
Pittsfield	22,870	15	1	13.33	46.66	—	—	6.67
Medford	21,956	7	4	14.30	—	—	—	—
Chicopee	21,692	4	1	25.00	25.00	25.00	—	—
Northampton	20,314	7	1	—	—	—	—	—
Beverly	15,807	5	3	—	40.00	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	5	3	—	—	—	—	—
Adams	14,745	1	0	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	4	—	—	25.00	—	—	—
Newburyport	14,478	4	1	50.00	—	—	—	—
Woburn	14,315	4	1	25.00	—	—	—	—
Melrose	13,819	7	—	14.30	42.90	—	—	—
Westfield	13,809	4	1	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	7	2	28.60	14.30	—	—	—
Revere	13,609	4	1	25.00	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	13,324	—	—	—	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	2	—	50.00	—	—	—	—
Weymouth	11,350	4	0	—	25.00	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,363; under five years of age, 975; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 645, acute lung diseases 799, consumption 329, scarlet fever 42, whooping cough 6, cerebrospinal meningitis 7, smallpox 2, erysipelas 15, puerperal fever 16, measles 16, typhoid fever 27, diarrheal diseases 78, diphtheria and croup 88.

From whooping cough, New York 5, Pittsburg 1. From smallpox, Pittsburg 2. From cerebrospinal meningitis, New York 2, Boston 3, Malden 1, Marlborough 1. From erysipelas, New York 5, Chicago 4, Baltimore 3, Boston 2, Pittsfield 1. From measles, New York 14, Baltimore 1, Boston 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending Jan. 30, the death-rate was 19.4. Deaths reported, 5,669; acute diseases of the respiratory organs (London) 258, whooping cough 167, diphtheria 77, measles 114, smallpox 2, scarlet fever 39.

The death-rate ranged from 6.4 in Hornsey to 38.0 in Merthyr Tydfil, London 19.5, West Ham 14.5, Brighton 21.1, Southampton 14.4, Plymouth 18.8, Bristol 16.6, Birmingham 22.3, Leicester 16.3, Nottingham 17.6, Liverpool 21.5, Bolton 19.3, Manchester 25.4, Salford 22.3, Bradford 21.2, Leeds 20.5, Hull 20.5, Cardiff 19.5, Rhondda 19.2, Kings Norton 9.4.

METEOROLOGICAL RECORD.

For the week ending Feb. 13, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 7	29.55	34	48	19	87	95	91	E	S W	3	9	F.	C.	.05
M.. 8	29.98	26	43	10	47	48	48	W	W	15	17	C.	C.	0
T.. 9	30.38	8	14	1	70	76	74	W	W	8	10	C.	C.	0
W. 10	30.36	12	24	-1	71	62	66	W	N W	15	8	C.	C.	0
T.. 11	30.38	13	20	6	82	68	75	N W	N	13	5	O.	C.	T.
F.. 12	30.34	18	26	9	76	66	71	N W	N	8	11	F.	O.	0
S.. 13	30.34	24	30	19	87	77	82	N	N	17	6	O.	O.	T.
Mean.	30.19		29	9			72							.05

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mean for week.

DELAYED PUBLICATION.—The continued strike among printers and pressmen is responsible for delays in issuing the JOURNAL.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR SURGERY. — A meeting of this section will be held at the Medical Library on Wednesday evening, March 2, at 8.15 o'clock. There will be no formal paper read, but the members are invited to discuss the Surgical Treatment of Hypertrophy of the Prostate. Members who cannot attend the meeting are requested to send to the secretary brief reports of any cases (particularly the unsuccessful ones) illustrating special points of interest in relation to this subject.

E. A. CODMAN, M.D., Secretary.
104 Mt. Vernon St.

MEDICAL SOCIETY OF THE MISSOURI VALLEY. — The spring meeting of this association will be held in Lincoln, Neb., March 24 and 25, under the presidency of Dr. A. D. Wilkinson.

CHARLES WOOD FASSETT, M.D., Secretary.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. — As heretofore announced the American Medico-Psychological Association will hold its next annual meeting in St. Louis, May 30 to June 3, inclusive, under the presidency of Dr. A. E. Macdonald of New York.

C. B. BURR, M.D., Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. — The tenth annual meeting of the American Laryngological, Rhinological and Otological Society will be held in Chicago, Ill., May 30, 31 and June 1, 1904, under the presidency of Dr. Norval H. Pierce.

WENDELL C. PHILLIPS, M.D., Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall on Monday, March 14, at 8.15 P.M. Drs. George H. Monks and Charles Harrington will present short papers on the subject of "Some Weak Points in Surgical Asepsis." These papers will be discussed by Drs. F. B. Harrington, James G. Mumford, J. Bapst Blake, F. B. Lund, F. S. Newell and others. After the meeting there will be a social half-hour.

ARTHUR K. STONE, M.D., Secretary.
543 Boylston St.

LECTURES TO NURSES.

A COURSE of lectures is being given at the Boston Medical Library to the nurses and their friends. The first was by Dr. Paul Thorndike, Feb. 23, 1904: "The Private Nurse from an Educational Standpoint, Comparing the Past, Present and Future."

The other lectures arranged for are:

March 2, 1904, 8 P.M. Dr. John Lovett Morse, "Infant Nursing."

March 8, 1904, 4.30 P.M. Dr. E. Channing Stowell, "Children."

March 22, 1904, 8 P.M. Dr. A. K. Stone, "Tuberculosis," with lantern slides. The public are especially invited to this lecture, as the subject is of general interest.

ERRATUM.

WE beg leave to correct an unfortunate typographical error which occurred in our issue of Feb. 18. On page 196, second column, line 18, 53,389 (bottles) should read 159,072.

RECENT DEATHS.

WM. RANKIN, JR., M.D., a prominent specialist in diseases of the eye and ear in Newark, N. J., died on Feb. 26 at the age of fifty-six years. He was a graduate of Rutgers College and of the College of Physicians and Surgeons, New York. After receiving the degree of M.D. in 1871 he studied for a considerable time in Vienna. He was for many years attending physician to the Newark Charitable Eye and Ear Infirmary, and was also secretary of the old Newark Medical Library Association.

GUSTAV LIEBMANN, M.D., M.M.S.S., died in Boston, Feb. 20, 1904, aged seventy-one years.

JEFFERSON CUSHING GALLISON, M.D., M.M.S.S., died in Franklin, Feb. 22, 1904, aged sixty-three years.

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE EXAMINATION.

WASHINGTON, D. C., Feb. 16, 1904.

A BOARD of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B Street, S.E., Washington, D. C., Monday, April 4, 1904, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: (1) Physical. (2) Oral. (3) Written. (4) Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and, when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

For further information, or for invitation to appear before the Board of Examiners, address,

SURGEON-GENERAL,
Public Health and Marine Hospital Service,
Washington, D. C.

BOOKS AND PAMPHLETS RECEIVED.

Annual Report of the Health of the Imperial Navy for the year 1901. Tokyo.

The Lorenz Method. By Edmund W. Holmes, A.B., M.D. Reprint.

Left Sided Appendicitis. By Edmund W. Holmes, A.B., M.D. Reprint.

The Use of Wet Specimens. By Edmund W. Holmes, A. B., M.D. Reprint.

The Levator Ani Muscle. By Edmund W. Holmes, A.B., M.D. Reprint.

Suprapubic Cystotomy. By Edmund W. Holmes, A.B., M.D. Reprint.

The Deep Fascia. By Edmund W. Holmes, A.B., M.D. Reprint.

Moderne Arztliche Bibliothek, herausgegeben von Dr. Ferdinand Carewski, Berlin, Heft 1. Die wissenschaftlichen Grundlagen der Kryoskopie in ihrer klinischen Anwendung. Von Prof. Dr. A von Koránvi. Berlin: Verlag von Leonhard Simion. 1904.

Excision of the Frenum Preputii following Laceration during a Suspicious Intercourse. By Charles C. Miller, M.D. Reprint.

Are We to Have a United Medical Profession? By Charles S. Mack, M.D. La Porte, Indiana. 1904.

Gynæcological Nursing. By Netta Stewart. Illustrated. New York: William Wood & Co. 1903.

Lessons on Massage. By Margaret D. Palmer. Second edition. Illustrated. New York: William Wood & Co. 1904.

Original Articles.

THE RELATION OF SOME SPECIAL CAUSES TO THE DEVELOPMENT OF NEURASTHENIA.

BY ROBERT T. EDES, M.D., BOSTON.

The field of functional nervous disease grows narrower year by year, but there still remains much where no lesion is discoverable by the microscope, no microbe or toxin by the incubator or test tube, and where symptoms are not accompanied by enough of that ever-increasing group of stigmata to form any reasonable basis for a diagnosis of degeneration or, as rightly and forcibly suggested by Walton, are not sufficiently variant from the average structure to make it even probable that a departure in the downward direction from the normal function must exist.

All these may be suspected but are not yet proved. Observation, however, has in so many cases found causes of irritation or sources of fatigue distant from the organs apparently most affected that a systematic search for peripheral disorders or systemic poisoning is the logical and correct procedure for therapeutic purposes.

This search resulting, as it should do, so often in a success which furnishes strong evidence in favor of the dependence of psychic or general nervous derangements upon local irritations or special nervous drains, when applied to large numbers of cases has resulted in so many theories, each claimed by its advocates as almost exclusive, that they cannot easily all be true, certainly not to the extent of being each exclusive of the others.

Unfortunately, many of them were apparently formed upon the basis of some special group, and the deductions, legitimate as applied to this, have been carried too far and made to demand a forced agreement from others which do not belong there.

Each one of these may alone seem reasonable, is undoubtedly based upon more or less well-observed facts and may lead to important therapeutic results, and yet when brought into confrontation with others in the attempt to construct an orderly etiology the results are contradictory and confusing.

Each under the advocacy of an enthusiast is satisfactory to him and to the disciples who are sure to attach themselves to any novelty, but each as it is tested beyond the original group fails to cover the claim. We have advocated as potent and comprehensive causes for neurasthenia, for epilepsy, for the severe headaches and other pains which are by some considered typical of neurasthenia, and by others the preludes thereto, several more or less distinct conditions which have been claimed either as covering almost the entire field or else, what would be the very perfection of diagnosis and pathology if it could be true, a definite and reasonable cause corresponding to a special and well-defined symptom-complex related to, but not identical with, neurasthenia. Such are overwork and worry, lithemia, eyestrain of two kinds, sexual diseases and abuses of the sexual organs and abnormal sexual feelings, ovarian irritation, displacement of the abdominal viscera, to say nothing of the remoter consequences of too fine wheat flour and too coarse Indian meal.

Difference of opinion is often really difference of definition and nomenclature, and the discrepancies may often be at least much diminished by a mutual understanding of what is meant. The name "neurasthenia" is not infrequently used to cover any mere jumble of nervous symptoms which are quite distinctly not to be referred to any of the recognized organic nervous diseases and do not readily fall into any of the established categories of the functional. Hence it may mean anything from melancholia on the one side, when we use it to avoid hinting at anything like insanity, or, on the other hand, epilepsy, chorea, bad habits, bad temper, general debility, hypochondriasis, indolence and so on.

The description of Glenard, though inaccurate and misleading except so far as it applies to his exclusive theory, is certainly a vigorous one.

"Neurasthenia (névrosisme, névropathie, névrose protéiforme, maladie nerveuse, état nerveux, nervosité, fievre nerveuse, épuisement nerveux, surexcitation nerveuse, vapeurs, maladie vaporeuse névropathie cérébro-pneumogastrique, dyspepsie nerveuse, etc.) is a chronic affection, in which all the organs, all the apparatus, all the systems may suffer successively or together, where no local lesion can be found, an affection of which the diagnosis is not made until after the elimination of all distinct diseases, of which the prognosis is contingent on the result and demands the proof of time, and of which the treatment exhausts the patience of the patient and the physician. It is because no lesion has been found that we have agreed to say that there is none, and then because we cannot explain the symptoms that we have agreed to incriminate the nervous system. Neurasthenia is an arbitrary morbid entity."

It is possible, however, without straining the facts, to accept the view that neurasthenia is not merely a name to cover want of classification, but is a fairly well-defined condition, if not a distinct disease, and has a real pathology. It is necessary to do this if we wish to get any correct idea of its relation to its alleged causes.

Neurasthenia is a state of diminished energy of the nervous centers, especially the higher psychical, closely akin to ordinary fatigue, of which, indeed, it is an extreme development, but so extreme as to have become different in kind, that is, in incapacity for rapid restoration under favorable circumstances and in a time in some measure corresponding to that taken in its development.

The ordinary everyday expenditure of energy, be it small or great, should be restored also within the same time, or, if there be a little falling behind, the accumulating loss made good at somewhat longer intervals.

When this loss becomes too great to be made up easily and the strain goes on without relaxation the condition becomes neurasthenia, *i. e.*, the centers are no longer capable of rapid restoration even under favorable circumstances. What the limits are is a matter which varies immensely in different persons. There are those who are practically beyond the chances of neurastnenia, and there are others whom only a very slight excess, especially of emotional strain, brings dangerously near the line. Within these limits the mass of civilized mankind is found, each having his capacity for carrying his burden, which may or may not be reached according to circumstances, a capacity which again is capable of considerable modification according to the way in which the load is carried. It is in the proper adjustment of the strength to the load, the selection of the proper rhythm of work and rest so far as possible, that the prophylaxis of nervous exhaustion consists. It is upon learning how to do this after a first failure that anything like a permanent cure depends.

To use a morphological illustration which may or may not have an actual basis in fact, we know that the examination of ganglion cells by Hodge and others has shown visible changes, diminution of the chromophile bodies and shrinking of the nucleus, dependent upon ordinary fatigue. It is possible that nervous exhaustion may depend upon a process which is more permanent and more resembling degeneration, as actual dislocation of the nucleus, and atrophy resulting from using up of more than the hydrocarbon elements, and a resort to the complicated proteid components which go to make up the structure of the cell itself and which cannot be replaced at short notice.

There are many forms of insanity which do not imply any weakening of the central impulses, but often the contrary. It might happen in such that there would not be so much change visible as in ordinary fatigue, although of course in others the lesions of the neuron are not only extreme but irreparable.

To use another simile, fatigue is a temporary weakening of the battery from keeping the circuit open too long. Neurasthenia is a using up of the elements, destruction of the zincs. Insanity may or may not include these, but is essentially a disarrangement of the connections, burning out of fuses and short-circuiting between centers which are not arranged to work together.

We must look to experiment and observation to determine which centers, which groups of neurons or which faculties are chiefly affected and have lost their capacity to store energy rapidly enough to renew constant losses. While it is probable that all are so to some extent, the essential point which must be yielded before neurasthenia can be said to exist is that which controls all the rest, which determines the direction and intensity with which the psychic apparatus shall expend its energy, that is, the attention, will, active apperception. This function is invariably attended by a motor impulse and usually by some degree of actual motor activity,—attention to visual objects by muscular contraction under the influence of the oculomotorius and the ciliary muscle; perhaps, also, by more or less of the muscles of the neck and trunk; auditory attention by contraction of the tensor tympani and stapedius; ordinary sensation by contractions of the muscles of the fingers, toes or tongue; perhaps, also, of the trunkal muscles holding the body perfectly still.

It must be considered, also, that inhibition of certain motions, as in the act of listening or watching, is also a motor impulse, even if resulting in no visible or perceptible motion. It is negative only in the sense of being in the opposite direction and calls for a positive expenditure of energy. The fatigue of restraint is a matter of common observation.

If emotional excitement is involved we have the reaction of the muscles of organic life, the heart, the respiration, vasomotor apparatus or intestine. It is immaterial what the amount of work measured in foot-pounds may be. It is the amount of nervous force expended in keeping up the necessary tension which has the controlling influence -- the amount of psychic effort and not the muscular work done is the important factor and standard of fatigue. The amount of energy liberated in the ciliary muscle in the effort to focus a printed page, which is very often thoroughly fatiguing, is almost infinitesimally small compared with that involved in the movements of the great masses in the back and legs in walking, which may be kept up for hours with comparatively little. Even this latter kind, however, is subject to the same rule. Hurrying to catch a train is felt as greater fatigue than walking the same distance at a leisurely gait.

It may be possible for simple thinking, revery or dreaming, the uncontrolled association of ideas, to go on without the motor idea, but it is difficult to imagine anything like careful or purposive thinking without it. Certainly all having any practical end in view must involve much of such ideas.

The intensity of thought is developed by emotional stress and when intellection is kept up continuously and at a high tension the fact of itself argues emotional stress of some kind, such as ambition, affection, fear or conscience. Worry may be defined as continuous mental activity under emotional stress of a painful kind, traversing the same ground with weariful iteration because coming to no useful conclusion. Here fatigue is not in the least a measure of valuable mental labor performed, but only of the activity of the attention in keeping the mind fixed. It is a matter of the most common observation that the inexperienced accountant, for instance, is much more tired from a mistake in a simple column of figures than the mathematician who soars into the regions of the calculus and astronomy. The possibility of keeping the attention fixed varies immensely in different persons, as every teacher knows, and it can be greatly improved by training, which is and should be one

of the chief ends of school life. The teacher soon knows who are the patient plodders, who learn and learn well because they keep at it, and which are the bright ones, who learn perhaps but little unless they can see it at the first glance. The training of the child's attention should, however, be gradual. He is naturally incapable of long periods of work without great fatigue. Short periods of real work with frequent pauses may be gradually lengthened as he grows older.

Fatigue is first felt in the muscles, but at that point is capable of very rapid restoration, next at the motor center and finally, when continued and when accumulating under pressure, felt most strongly and most permanently at the centers of will and attention which keep the lower ones up to their work. If this view or something like it be accepted it is easy to see how such various causes as have been alleged, and which are all probably to a greater or less extent operative, may lead to almost identical results, modified, perhaps, according to the channels through which peripheral irritations reach the psychic centers or through which the resistances are offered to the motor discharge.

We may say that neurasthenia is a paresis of the attention and will, the result of long-continued overfatigue, which in its turn is the consequence of enforced and often unsuccessful overaction of some motor activity carried on under emotional stress.

Apparently the simplest, most obvious and most frequently assigned cause for neurasthenia is mental overwork and, in the cases of the young, overstudy. Much has been written on these subjects, many experiments of the amount of fatigue produced by the various school studies and many warnings given. In one sense overwork, that is, the overaction of certain nerve centers, is the *only* cause of neurasthenia, but in the more limited sense of overwork in business, profession or school it is of much narrower application. The ordinary everyday work of the breadwinner, the housekeeper or the scholar, even if covering many more hours than are considered desirable by physiologists or approved of by labor organizations, but coming to a definite end at the end of day, brings fatigue, perhaps even intense fatigue, but it is rarely to the degree which is not susceptible of rapid restoration, either day by day or with the addition of the holiday or vacation.

It is when it is enforced or added to by responsibility, anxiety, ambition and especially when even with these reinforcements it is doomed to constant failure, to hopeless and fruitless endeavor, the labors of Sisyphus and the Danaidæ, that it becomes a crushing burden to those not richly endowed either by birth or by education with adequate resistance, or who have not acquired sufficient prudence to resolutely refuse to carry more than they know they can struggle under. It is on the correct estimation of one's nervous power and the resolution not to go beyond it and in the selection of the rhythm of work, whether it be the steady daily task or the "spurt" and long rest, whichever is most suitable to the individual, that the prophylaxis of this form depends.

Even utter monotony, which seems at first sight to be a safeguard, and probably often is so as transferring the responsibility of conscious cerebration to a mere automatism, may in reality be more wearing than some forms of mental labor of higher order or calling for much more individual action. The exhaustion, however, comes not from the amount of mental labor, not from the actual cerebration, but from the fatigue of the will in forcing one's self to keep on in spite of want of interest, disgust and *ennui*.

The muscular fatigue from the action of a large number of muscles, which represents the maximum of expenditure of energy at a low tension, is never itself a cause of nervous breakdown, but as an accessory and additional cause when injudiciously taken as a relief from intense mental activity it is of some importance, as, for instance, in the case of breakdown in teachers of physical culture.

The relation between muscular and mental fatigue is shown by the observation first made by Mosso of the shortening of the fatigue curve lasting for many hours after the subject had been engaged in an examination. This is not true of everybody and it would not be difficult to suggest an explanation in the difference to which the feeling of responsibility was present in different cases.

On the other hand, every one knows that extreme muscular fatigue renders one incapable for a time of doing his best mental work, but mere muscular fatigue is very rapidly restored.

As regards overstudy in school so often talked of as the cause of breakdown in young people, I believe it is very seldom seen from genuine overwork. There may be a good deal of fatigue, but it is of the kind and degree which does not go beyond physiological limits and is capable of rapid restoration. The fatigue may interfere with proper exercise and sleep and in this way promote ill health and retard development so that it would be a contributor to the result, but there is almost certain to be in such cases something outside or else, perhaps not very infrequently, something in the way the task is attacked which transforms what should be an interested search for knowledge or a gradual training of attention into an eager and thoughtless race for distinction or an anxious struggle to avoid failure. These are quite as likely to oe seen among teachers as scholars and more among girls than boys.

When a young man or woman is heard of as completely broken down by overwork in college, it is safe to conclude or, rather, since it is not safe to conclude anytning in medicine from hearsay, there is generally reason to suspect that other causes have been at work than that which is intended for the public announcement.

The great development of institutions of higher education, especially among women, has not resulted in any increase of nervous diseases. The

neglect and indifference to this important subject which obtains among so large a part of the profession even here, but which is even more marked on the other side of the Atlantic, prove that it is a less common cause than Dr. Gould supposes, but yet one cannot help feeling that a highly educated class of men, quite as anxious to be abreast of the times as any Yankees, could not willfully shut their eyes to so easily tested and so practical facts.

The eyestrain heretofore spoken of is that of the ciliary muscle due to errors of refraction. This was the first brought forward, and now it seems again to occupy the first place, but in the meantime there has been an episode.

The want of balance of the extrinsic muscles has had as many and as disastrous consequences attributed to it as the ciliary. This, to which Dr. Gould assigns only a secondary and accidental importance and proposes to correct when present by prisms, strongly disapproving of muscle cutting, Stevens and Ranney treat exclusively by the latter method and speak contemptuously of glasses.

As regards severity of cases and completeness of relief the claims are far in advance of any of the refractionists. "Esophoria, hyperphoria and hypermetropia are the most common abnormal conditions encountered in cases of neuralgia, headache, epilepsy, chorea, insanity, nervous prostration and other severe types of chronic nervous disturbance."

Wilton and Carter say: "It is perhaps the extreme character of these views which has defeated their adoption, but is probably nearer the truth than the view that this factor need not be mentioned in the etiology of migraine or considered in its treatment." Ranney, however, claimed far more than headache.

It is in reference to this form of eyestrain that St. John remarks after the examination of a series of cases with this point in view: "For every eyestrain headache there are twenty from disordered stomach or liver, improper food, want of exercise or other irregularity in the domain of the general practitioner." Dr. Gould would probably claim this twenty as due to strain of the ciliary.

It has been remarked that no instance has yet been brought forward in which headaches have followed the use of other than the ocular muscles, but the principle upon which these ocular headaches depend has probably a wider application.

Hancock, referring to this remark, says: "While I fully admit that continual muscular exertion in general does not cause headache, I think it probable that excessive and continued contraction of any muscle supplied by cranial nerves would do so."

It seems to me that it would be more philosophical, instead of limiting the exception anatomically, to have put it that continued use of muscles at a high grade of tension and attention was the cause of the headache. The ciliary is the purest type of such a muscle and undoubtedly its overaction, and especially its action which accomplishes its object for a time and with much difficulty, is the cause of more headaches than that of any other one, but there is no reason why there cannot be an ear headache of the same character, although it is, of course, easier and safer to give up any attempt whatever at hearing than of seeing.

Blake has called attention — although not having his paper at hand I am not sure that he mentions headache as amongst the symptoms — to the fatigue which arises from a person with somewhat defective hearing trying to hear distinctly. It depends on three distinct efforts, of which only the first, the effort to hear, is referable to the ear. The second is the effort to supplement this failure by lip reading and the third the mental effort to fill the gaps left by the two senses.

The case of a neurasthenic girl who used to have headaches after reading, just as eyestrain cases do, is interesting. She had lost many years before not only her eyesight but nearly the whole of her eyes, and her reading was accomplished with her fingers, thus showing that nerves below the cranial may under some circumstances attain the same bad privilege.

It is, of course, conceivable that any one of these important conditions, if brought to bear upon a system which is by birth or by education of impaired resistance, should by itself be applicable to all cases of neurasthenia as the sole cause; and it is, of course, equally possible that all should be present in only one case, but the probabilities are immensely against either of these extreme alternatives.

The unquestioning acceptance of any one of these or its overwhelming prominence in the mind of the practitioner tends to relieve him of the responsibility of making the decision as to which is operative in the case before him, but his knowledge of the possible presence of any one or any two or three of them places it upon him rather than upon the specialist. The general practitioner or the neurologist is the center toward which all the lines converge, and although it is more than should be asked of any man in these days that he should be familiar with the details of all the specialties, he should be able to follow the most important clues far enough to decide when to call in his brothers whose knowledge is more restricted and consequently more precise, and whose treatment can be more accurately adapted to each individual patient.

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THE INTRA-ABDOMINAL RUPTURE OF OVARIAN CYSTS. WITH REPORT OF A CASE.*

BY ERNEST BOYEN YOUNG, M.D., BOSTON,

Second Assistant Visiting Physician for Diseases of Women, Boston City Hospital; Assistant in Gynecology, Harvard Medical School.

ALTHOUGH intraperitoneal rupture of the smaller ovarian cysts must happen quite frequently, rupture of the larger cysts is more often read of in textbooks than seen in medical or surgical experience; so that the occurrence of such an accident in the Boston City Hospital seems worthy of more than passing mention, especially as there is but one other of its kind to be found in the records.

For many years, and in fact until the third decade of the century just past, the diagnosis between the ovarian cysts and encysted collections of ascitic fluid seems to have been seldom made during life. This is not to be wondered at when we stop to consider that the abdomen was practically unknown to surgery and the only relief for either lay in tapping with the trocar.

Early operation, practiced to-day upon all ovarian tumors, has no doubt materially lessened the chances of such unfortunate accidents, and the instances which appear in the medical journals seem comparatively farther apart as we approach the present time.

In looking over the works of the older writers, the first report of the rupture of an ovarian cyst is that by Fabricius Hildanus [1] (1560–1634), who described the rupture of a dermoid cyst through the abdominal wall.

Wepfer [2] (1620–1695) described what was probably an intra-abdominal rupture, which is cited by Morgagni [3] (1682–1772), who in his turn gives us the history of one in his own experience. In both instances the exact diagnosis was not made.

Mauriceau † (1637–1709) evidently saw a case of this nature, but it is uncertain whether he recognized the condition, considering it apparently, like many of the older writers, an encysted ascites.

Bacher,[4] in 1705, described a rupture and Monro,[5] in 1770, cited the case of Haller (1707–1777).

Camus,[6] in 1844, wrote the first scientific paper on this subject, collecting some cases from literature and adding his own; while Chereau, in 1847, published a few statistics.

Next Tilt,[7] in 1848, collected 71 cases where the tumor discharged into the peritoneum, including 5 ruptures of the tubes, and Palm,[8] in 1868, published 25 cases in connection with his thesis, in all of which rupture was due to stretching or thinning of the cyst wall, or to outside trauma.

Kroker,[9] in 1869, took the etiology of the perforation of ovarian cysts as the subject of his thesis, and Spiegelberg,[10] in 1870, had an article in the *Archiv. fur Gynakologie* on rupture into the peritoneum.

Nepveu,[11] in 1875, was able to gather 128 cases for his article, which is probably the most complete list prior to our more modern surgical methods.

Olshausen's [12] section on "Die Krankheiten der Ovarien," in Billroth's "Handbuch der Frauenkrankheiten," contains a good summary of the information upon this subject, a certain amount of bibliography and references to illustrative cases.

Aaronson,[13] in 1883, worked up an exhaustive list for his thesis, which numbered 181 cases; and in the same year Waite [14] published a very complete study of the rupture of cysts of the ovary.

In the theses of Hue [15] (1883), Poupinel [16] (1886), Remy [17] (1886) and Sebileau [18] (1889) will be found material of interest in this connection.

To the thesis of Lair [19] (1892) I have not had access, but it is highly commended by Duffner,[20] who in 1893 put forth the most elaborate work upon the subject which I have found, containing a very complete bibliography and 221 cases of intraperitoneal rupture.

Storer's [21] article of 1897 is the best in this country and apparently in the English language, although both English and American journals contain many meager reports of such cases, with either very slight references to literature or more often none at all.

The foregoing brief synopsis of the bibliography of this subject will be found to contain the principal articles, and any one who takes the trouble to peruse them will possess a good knowledge of the subject.

CASE. S., female, single, forty-two years of age, was admitted to the gynecological service of the Boston City Hospital on Feb. 24, 1903, having been referred by me from the Out-Patient Department a few days previous.

On entrance she complained of pain in the right lower quadrant of the abdomen and said she thought she could feel a "lump" growing. For three months previous to entrance she had vomited occasionally and suffered from constipation, although formerly quite the reverse had been true and on two occasions, eight and ten years before, she had been treated for diarrhea at the Massachusetts General Hospital. During the last ten years she had been a constant sufferer from indigestion. There had been no menstrual flow since the previous November.

Physical examination. — Well developed, poorly nourished; pulse 104, of fair volume and tension.

* Read at a meeting of the Obstetrical Society of Boston.
† Observ. 289. Quoted by Camus.

mobile, *i. e.*, not attached by cartilage, and this he calls a " stigma neurasthenicum," thus making of the whole an inverse order to that of Glenard.

Some recent observations at the Boston City Hospital by Larrabee with reference to the movable kidney, care being taken to get the patient's account of the symptoms before being informed of the presence of anything abnormal, show by no means an intimate connection between the displacement and general nervous symptoms. Neurasthenia was found in not far from equal frequency among those who had and those who had not the movable kidney. Ptosis of the kidney, alone or with other organs, was considered to be the cause of the symptoms complained of in but 14% of the patients presenting this lesion.

Dyspepsia not associated with enteroptosis, or perhaps it would be safer to say not known to be associated with it, is well known as perhaps an accompaniment, but by many considered a cause. The all-embracing "lithemia" has been assigned a very important share in the production of nervous headache, such as would be considered by many physicians as close upon neurasthenia. Dana, for instance, remarks," A chronic headache not due to tumor or meningitis or syphilis is almost invariably of neurasthenic origin." The paroxysmal or sick headache or migraine is by many given the same etiology.

In a considerable number of quantitative determinations of uric acid in the urine I was unable to trace any correspondence of any form of headache with either excess or diminution of the amount eliminated daily, and it is fair to conclude that if the headache is not due to uric acid the disease of which it is a very common symptom is not of lithemic character, unless the word is used to signify a condition of poisoning by some as yet unknown product of imperfect digestion. Of such a theory we can only remark that, although it seems very plausible, there is as yet no chemical proof to incriminate any special substance.

Anemia is perhaps even less to be considered of importance as a sole cause. Although of course the nervous centers must have their supply of nourishment in order to work, and hence must suffer from a deprivation, yet the mental affection of starvation is a delirium which does not result in permanent nervous breakdown. I have not been able to find a case of permanent or chronic breakdown among the professional fasters and a few others who for some reason have denied themselves food.

The nervous system seems to have the last claim upon such little nourishment as may be circulating and is kept going in as near an approach to the normal form as any other. The inanition of animals experimented on has been found to bear less hardly on the nervous centers than elsewhere.

Certainly no local draft of energy could be more ingeniously adapted to bring out the earlier symptoms of neurasthenia and to develop them to the full in cases of lesser resistance than a pair of eyes incapaole of perfect function separately or together, and yet not so thoroughly unfit as to completely prohibit their use for near vision. The constant and constantly unsuccessful attempt, from which there is no natural relief but disuse, and with necessity or ambition constantly pushing the imperfect organ to its never satisfactorily accomplished function, and then, too, this organ, the one upon which so much of useful activity in the higher walks of life depends, together with the psychic strain under feelings of failure and disappointment, make the ideal combination to develop nervous exhaustion under the highest tension possible. To this pitiable condition all mankind (or all civilized mankind), according to Dr. Gould, approach more or less nearly.

There is not even optically a perfect pair of eyes. " The one pair that had been pronounced mathematically perfect by the most expert testimony I demonstrated had myopic astigmatism, and this defect caused repeated and severe subconjunctival hemorrhages." This statement, which practically agrees with many other authorities, might at first be taken as not very important and merely one of those utterances of the hypercritical to whom nothing that nature makes is quite right, such as the symmetry of the two sides of the body, the arch of the palate, the shape of the ear, the color of the eyes, the position of the uterus, the length of the legs, the activity of the reflexes and so on; but it is really quite a different matter, for Dr. Gould states that " the evil reflexes are the worst in the low defects, — those that the eye can overcome by intense effort, but only for a short time."

He does not claim that all or nearly all of these become neurasthenia, but that a constant strain manifesting itself at first by constantly recurring headaches and by more remote symptoms, among which dyspepsia holds a very prominent place, goes on to neurasthenia only in those cases where resistance is congenitally or by training or by other causes of depression diminished below the point where it can easily be restored by a short rest.

Indeed he denies in the cases of many of the distinguished persons whose cases he has so carefully studied, and who suffered almost exclusively (according to his diagnosis) from eyestrain, that any condition of neurasthenia existed. A proof that a great majority of those who suffer in this way do not go on to a complete development is to be found in the relief, not only complete but immediate, which they experience from getting the properly fitting glasses. They are rather to be regarded as fatigue, extreme indeed and constantly recurring, but restored often enough by daily rest or by a longer abstinence from study to prevent their going on to exhaustion. Dr. Gould's contention, as understood from his various publications on the subject,[1] including the study of the ill health of a number of distinguished literary persons, is that a very large part of the chronic ill health, including dyspepsia, of men and

[1] Biologic Clinics, 2 vols.

women, distinguished and undistinguished, literary, artistic, as well as all handworkers who must use their eyes for near work, is due to eyestrain. That this eyestrain is largely unrecognized, although better known to the laity than to the rank and file of the medical profession and even to many oculists, is owing, firstly, to the fact that the strain does not make itself felt in the eyes, but is reflected to more distant organs and, secondly, to the neglect and indifference not only of general practitioners and other specialists, but of many oculists as well.

This arraignment of his confreres, which he makes to bear especially upon the European oculists, seems a very strange one to affect men brought up in the very birthplace of scientific ophthalmology, but it is really not without its justification in the literature at least, however it may be in practice. It is certainly to be wondered at that such indifference should exist, since the knowledge of the relationship of many cases of headache to defective or painful vision and consequent eyestrain was pointed out very carefully by Weir Mitchell so long ago as 1874, 1875 and 1876, having been hinted at previously by others, as he himself points out.

There has certainly been time enough for such important knowledge to have crossed the ocean and to have become generally known even among those who are not in the habit of looking to this side for valuable suggestions. Of seventy-four persons whose writings are catalogued under "eyestrain" in the supplement volume from the Surgeon-General's library, one only is a German, who wrote a thesis "De copiopia," and one Austrian, who wrote, not of the effect of eyestrain upon the general health, but of the effect of school life on the eyes. Nearly all of the remainder were Americans.

Dr. Gould's explanation of the fact that in many cases the eyes themselves give but little sign of local trouble, but that the symptoms are so distant as to throw not even a suspicion on the organ which has been at the bottom of the whole mischief, unsuspected for years, is an ingenious but hardly adequate one. He says that the eye is such a precious organ that it must be preserved at all costs from any organic disease by throwing the irritation arising from its defective function as far away as possible, and therefore beside the headache, which seems very rarely, until a few years ago, to have made any one think of the eyes, we have nausea, vomiting and all the accompaniments of nervous dyspepsia. It certainly seems as if the good dame would have acted more wisely and more mercifully if she had been a little less careful and allowed a symptom or two to have pointed the way to relief instead of allowing all this mischief to go on unsuspected for so many years. Final causes are double-edged tools in natural history. The decision as to the numerical proportion of cases of defective eyes which cause headaches, which are cured and which get only that relief which comes with the establishment of presbyopia and which go on to neurasthenia can only be made by the oculists or those practitioners who keep closely in touch with them so as to know what happens to their patients after they have been properly corrected.

One who is not a specialist can only take opinions. There are many sets of observations which show a very large percentage of cases of headaches cured or relieved by proper glasses. There are many neurologists who are perfectly aware of the importance of this origin, and it is difficult to understand how any American neurologist, at least, can help being aware of it, even those who do not accept the theory in the wholesale way that it is laid down by Dr. Gould. If the general practitioner should be inclined to criticize the extremest views in the light of the cases he has seen who have come to him for the relief of headaches after they have used glasses prescribed by presumably competent oculists, he would be headed off by Dr. Gould's "Sixty-eight Reasons why Glasses did not give Relief."[2] He finds, indeed, as the first one "that the patient's complaint may not be caused by eyestrain," and that may be just what he was thinking himself; but he cannot get much satisfaction out of it unless he can ascertain that the man who fitted the glasses lived up to a standard of competency and ethics which is very carefully described, but which will be hard to find fulfilled in every particular; that this man should have used the right mydriatic, in the right way, the best trial glasses and the best frames, and has seen that the patient and optician always kept them in order; and that he did not have "some prized fad or method, as retinoscopy, a peculiar drug, a mechanical device, optometers, refracting machines, etc., in the use of which facts must accommodate themselves to the fancy instead of the facts fashioning the diagnosis."

Certainly if these machines, which the non-refractionist looks upon with admiring awe and has been led to suppose have reached the acme of mathematical precision, and to be free from the least taint of the personal equation, do produce such effects upon the mind, even the general practitioner can understand that their use is greatly to be deprecated.

The cases of the several distinguished persons so carefully studied and so graphically described by Dr. Gould are not so conclusive to the non-oculist as they seem to be to him. There is too much which is perfectly clear to him which does not compel the assent of others and which seems susceptible of other explanations, or at least indicates that other factors may have been present and may have been the more important. It is surely within the limits of possibility that dyspepsia may have had other causes than eyestrain and that outdoor life and relief from anxiety might have benefited it even if not due to this one cause. Some of these people may have had enteroptosis, and it is even possible that other reasons which one does not publish in an autobiography may have come into play.

It would, perhaps, be unfair to argue that the

[2] Amer. Med., July 4, 1903, p. 20.

breakdowns in later life — whether of men in active business or of women engaged in the self-imposed tasks which they are pleased to term their social duties (such cases are not alarming), or much more probably and seriously those of a class who figure on the books of institutions as "no occupation," meaning in reality a dozen which do not count because from no one of them can they gain a living — do not necessarily imply any cause outside the life work, but do testify to a wrong method of conducting it, either by choice or by necessity.

Many are, of course, neurasthenia by courtesy only, but many others present the purest type of those forms which begin at the psychic center. Bartholow pithily remarks: "When a man says he is suffering from efforts of mental overwork I want to know what his vices are. Worry may be one of them. It is the ease and luxury of American life that cause mischief. It is the indulgence in eating and drinking, the abuse of alcohol and tobacco, sexual excesses, sedentary habits and too luxurious lives generally, that induce the state of the system called nervous exhaustion. I deny that it is a primary nervous affection and that it is a substantive disease. I hold that it is symptomatic and secondary." These remarks are true and perfectly applicable to the first of the cases which he gives as typical, but it is one which I should not consider true neurasthenia at all. In the second there was a comoination of dyspepsia, malaria and unusual mental exertion.

It is, however, possible for intense intellectual exertion involving an emotional element to be the source of great fatigue without calling in any secondary cause or primary weakness.

James Russell Lowell, who was no weakling, but whose personal feelings were deeply involved in his task, after several days' ineffectual brooding over the "Commemoration Ode," completed it in six hours, two days before it was to be delivered, and afterward wrote that it "made him lean and so nervous that he was weeks in getting over it." This was not neurasthenia and there was no danger of it. It was the natural effect of intense intellectual effort upon a thoroughly sound and healthy nervous system, a system controlled by a genius as far removed as possible from any trace of degeneracy.

But if a lesser man had had his daily bread to earn by a similar task every week and were aware that he was not doing it well, he would need but little outside pressure to bring him dangerously near the line. Then if, according to Stiller, he were pale and lean and his tenth rib were not united by cartilage to the sternum, or if, according to Glenard, his abdominal viscera were not firmly fixed in their places, or if, according to Bartholow and many others, he were to try to indulge in that ease and luxury which are not very likely to come to a man in his position, or if he tried to keep himself up to his work by alcohol and tobacco or cocaine or "nerve tonics" (which might be the same thing), or if, according to the Austrians and French, he appealed to Venus rather than to Bacchus for relief, or if, according to Stevens and Ranney, he could not easily converge his eyes upon his paper, or, according to Gould, could not focus them in their different diameters alike, he would surely cross the line.

If he had done or suffered all or several of these things it would depend upon the physician into whose hands he fell to say which one was responsible and whether he should get good advice, baths, calomel and exercise or have his kidneys triced up or his eye muscles cut or only put on the right pair of spectacles and go off a well man.

The influence of the sexual organs and either the overexercise or suppression of their normal function upon the development of neurasthenia has been from an early day in the distinction of this as a separate condition, and indeed, in a more general way, almost from the beginnings of medicine, invoked as a powerful one.

There can, of course, be no doubt of the deep and far-reaching associations of this primitive and powerful impulse with all parts of the system, physical and psychical, but of the actual effect of organic disease, or much more of misuse and irregularities of function, in the causation of neurasthenia and allied conditions it is difficult to speak statistically without inquiries more minute and embracing larger numbers than would be easy in the face of American and English reticence upon such matters, but it is not going too far to say such a causation would be found a real one, or at least the preponderating element, in many more cases than would appear upon the records. As a sole determining cause, however, and as covering the great majority of cases, I have little doubt its frequency has been exaggerated.

The theory of ovarian irritation as a cause not only of local pains, but of general nervous breakdown, leading to so-called "normal" oöphorectomy, has apparently passed through that boom period with which each novelty in treatment is favored among us, and at present finds its application, as its proposer, Battey, expressly said it should do, only in the extremest cases where there is practically no other hope of relief.

The question of the influence of pelvic disease, and the same might be said of the other kinds of local irritation, can only be fairly looked at in tne opposing light of the well-known effect which nervous and general debility has in aggravating the severity of any local lesion upon the system. The patient labeled neurasthenic may be immensely benefited by local treatment, but, on the other hand, many a woman has gone through with this in good hands without relief until she has had a thorough rest and treatment directed to her general condition. In the given case it is likely to happen that neither the gynecologist nor the neurologist can establish a clear and exclusive claim and the patient benefits by their co-operation.

The phrase "sexual neurasthenia" is applied to cases in which real or supposed sexual abuses or excesses have been more or less important factors in the origin and in which the symptoms are especially connected with weakness of the sexual

function. In many cases of this kind the condition is the product of more than one factor.

The symptoms as regards their intensity and tenacity are determined by the loss of energy in many directions, of which the sexual is only one, but the emphasis of the hypochondriacal disposition is likely to be determined chiefly by that which takes so strong a hold on the imagination, and is felt in the corresponding centers. Every practitioner is aware how easily the thoughts and attention and apprehensions of a young man can be turned in this direction by the slightest departure from the normal, aggravated by timidity, self-reproach and quack literature. The actual influence of this set of causes it is impossible, as remarked before, to express in percentages, but is undoubtedly very considerable.

Some recent foreign observers and theorists have made the connection between this class of causes and certain groups of symptoms a very exact and definite one, assigning not merely sexual excesses and abuses as one among several causes of functional nervous diseases, but each special form to a special set of symptoms. Neurasthenia proper is thus referred almost exclusively to solitary sexual indulgence, while Freud and his followers, whose psychical analyses, both in this and other departments, are certainly very ingenious, claim that the " phobias," or morbid fears of various kinds, which he separates off as a distinct group from neurasthenia, but does not unite with any form of insanity, owe their origin almost as exclusively to incomplete sexual relations or to enforced continence under temptation.

Many years ago Beard mentioned rather casually that in a few cases he had noticed a connection of this special kind.

These views, although highly important and interesting, are by no means universally accepted even in Europe, although several inquirers have gone over the ground carefully with confirmatory results.

Whether the much greater richness of Continental literature on these subjects has anything to do with the relative frequency of these vices and abnormalities in the Latin and Teutonic peoples would be a very interesting question if facts were obtainable to answer it.

These "phobias" "névrose d'angoisse," a general condition of timidity and fear developing into special and definite forms, sometimes approaching the distinctly insane delusion of persecution or *folie du doute*, are separated off from neurasthenia into a group by themselves as wanting in its most characteristic symptoms and as having this peculair and different etiology.

The coincidence of neurasthenia and sexual abnormality of any kind cannot be considered proof that the former is the result of the latter without further inquiry. The causation may be in the other direction. Abnormalities of all kinds are well-known accompaniments and symptoms in many neuropathic conditions as well as in actual insanity.

Symptoms of difficult and imperfect digestion are among the most frequent among what may be called the secondary ones of neurasthenia, that is, not secondary in point of importance, not much so in point of time, but simply as being less closely connected with the essential disorder. They aggravate it and are caused by it and, by supplying a new source of irritation and by interfering in the nutrition of the nervous centers, establish a vicious circle of a very obstinate kind. There are, however, theories of dyspepsia, using this term to cover the whole group, which make it the essential and important condition, either of neurasthenia itself, or of the earlier symptoms which point in that direction, and, upon the addition of some other irritant, run into it. Glenard sees but little distinction between the aggravated dyspepsia dependent upon enteroptosis and what he calls neurasthenia as he defines it in the paragraph already quoted. The influence of floating kidney or nephroptosis was long ago suggested as one cause of dyspepsia upon purely mechanical grounds from a pulling of the pedicle around the duodenum.

Important and accurate as Glenard's observations were as applied to the patients upon whose cases he based his work, yet looking at his definition and admitting that it does correspond to a good many of the diagnoses made, it is evident that his cases at Vichy were of a special class and selected not by himself indeed, but probably largely by fashion and tradition, and that a bath-physician is likely to see chiefly one special division of the class.

Others who recognize Glenard's correctness in associating dyspepsia with enteroptosis take almost exactly the opposite ground as regards the relation of causation with the nervous condition. Thus Stiller thinks that " if we divide nervous dyspepsia [a term which Glenard gives as one of the synonyms of neurasthenia] into three, the first or idiopathic is very rare even if there really is such a thing; the second or reflex has a real clinical significance, as when the stomach nerves are affected from the genital organs, but by far the greater number of cases are of that form which rests on a general neurosis, as neurasthenia where the dyspepsia is only a part of the more comprehensive functional disease." " This most common form is almost always accompanied by enteroptosis of greater or lesser grade; it represents the real congenital enteroptotic dyspepsia, so far congenital as that the splanchnoptosis as well as the dyspepsia develops itself in youth on the basis of congenital neurasthenia and the atonic bodily condition which belongs to it." He thinks that the type of case described by Glenard has been long recognized, not on the basis of a minute abdominal mapping out of location, but of the general appearance, " the pale, lean, delicately built young men and women, with dyspeptic and nervous complaints or even nervous expression of face, thin, soft belly, a flaccid, splashing stomach and the right, or both, kidneys movable."

One of the most interesting points of this paper is that in a large number of pale, lean, nervous dyspeptics he finds the tenth rib usually

Heart and lungs negative. Abdomen distended by a hard symmetrical tumor rising from the pelvis and extending to the umbilicus. Fluctuation wave present. Dulness over the tumor and in the right flank; tympany above the tumor and in the left flank. No alteration of percussion note with change of position. No edema; apparently no ascites; urine negative.

Owing to the rather poor condition of the patient it was considered best to wait for a few days and attempt to build up her general health. During her stay in the ward the temperature was slightly elevated, while the pulse kept falling, although there was at times some complaint of pain in the right lower abdomen. On March 1, in the early afternoon, vomiting commenced, and at the same time she suffered from abdominal pain. About 6 P.M. there came a marked deterioration in the pulse and the patient suddenly collapsed, the pulse being imperceptible at the wrist. At this time she complained of general abdominal discomfort, but no localized pain. A little later I saw her in consultation with Dr. George Haven, and at that time there were signs of free fluid in the general cavity and a diminution in the size of the cyst. The condition of the patient made operation at the time inadvisable; but although freely stimulated and given subcutaneous injections of salt solution, she failed to react and died about half-past five the next morning.

PARTIAL REPORT OF AUTOPSY BY DR. E. E. SOUTHARD.

Autopsy eighteen and three-quarters hours post-mortem. Slender white woman with delicate musculature and nutrition slightly lowered; body still warm; traces of lividity; breasts ill-developed; abdomen prominent.

Peritoneal cavity. — Upon incision a great quantity of yellowish fluid containing leucocytes, possibly three liters (two liters caught in graduate and measured) flows out, at first under some tension. The omentum is glued both to anterior wall of abdomen and to coils of bowel by tolerably firm, fibrous adhesions, as well as by fibrinous bands and bears upon both surfaces a considerable quantity of pus containing many leucocytes. (Organisms not demonstrated in smear.) Upon laying back the omentum the bowel is exposed, containing only a moderate amount of gas; there is minute injection, especially at the apposed edges which are sticky and covered with a thin, slightly greenish layer of fibrin; the fluid in the iliac fossæ and in the lesser peritoneal cavity is a little thick with fibrin; the lower third of the abdomen is filled with a multilobate tumor mass, to which the appendix, cecum, some folds of the small intestine and focal areas of the parietal serosa are united by adhesions. Upon lifting out the purulent fluid from the pelvis the rather small uterus is exposed, veered somewhat posteriorly and superiorly by the firm attachment of the right tube to the tumor mass. The various adhesions of the tumor mass are rather easily separable. Upon removal the mass weighs 570 gm. Its various lobes range in diameter from 1 to 4 cm. and are variously colored from clear porcelain white to diffuse pink; many of the folds and loci of adhesions show minute arborescent injection. The mass as a whole is fairly firm; many of the lobules are elastic and contain purulent fluid under tension. The smaller excrescences and some of the larger lobules are solid, but nowhere so firm as the normal ovary. One of the cysts presents a round aperture 5 cm. in diameter, which at autopsy goes upon and is adherent to a reddened fold of the ileum. Upon separation of the fold of ileum a great quantity of purulent fluid can be expressed from the cystic cavity within. The mesenteric lymph nodes of normal size and appearance. Diaphragm fifth rib left; sixth rib right.

Pleural cavity. — Normal.

Pericardial cavity. — Visceral serosa shows whitish thickening along anterior coronary.

Heart. — Weight 210 gms.

Measurements: Tricuspid valve, 11 cm.; pulmonary valve, 8 cm.; mitral valve, 6.5 cm.; aortic valve, 7 cm.; left ventricle, 1.5 cm.; right ventricle, .3 cm.

Spleen. — Weight 75 gms. Capsule bluish gray, lax, covered with fibrin; substance soft, reddish gray; slightly pulpy.

Gastro-intestinal tract. — Not notable.

Pancreas. — Not notable.

Liver. — Weight 1,140 gms. Brownish gray; somewhat soft and takes the thumb nail readily; lobules scarcely evident; lobule centers a little red.

Gall bladder. — Normal.

Ureters. — Normal.

Left ovary, uterus and tubes. — Normal.

Uterus contains glairy mucus. Right ovary replaced by tumor above described. Tumor on section consists of an association of geode-like masses with thick injected walls whose papillary structure can sometimes be made out; the fibrous columns which run out from the capsule are surrounded by grumous white material which may be teased into multitudes of gray knobs and threads. The cavities are occupied with cell detritus and leucocytes, in which no organisms are demonstrated in smear.

Anatomical diagnosis. — Epidermoid carcinoma, infection of lobules of tumor, rupture in the peritoneal cavity with acute fibro-purulent peritonitis, chronic adhesive peritonitis, sclerosis of mitral valve.

The autopsy showed in addition general arteriosclerosis, but nothing especially important concerning our subject.

Etiology. — Unfortunately it is impossible to ascertain the exact cause of rupture in many instances, as when recovery takes place this matter must very often remain unsettled and even after autopsy the reason is not always clear.

Duffner found a cause mentioned in only 38% of his 221 cases, while Storer in 108 was able to assign a cause for only 30% and "in many of these the assigned cause was at least questionable." In 46 cases which I have found in literature since 1893, a cause is given in only 16, and among the whole number were no autopsies of any worth, and 3 reports of the condition of the abdomen at the time of operation, which render it possible to make a diagnosis as to the malignancy of the tumor.

Cysts of the ovaries are formed at all periods of life from infancy to old age, and consequently the frequency of rupture at any given period corresponds to their prevalence at that time. According to the figures of Duffner, the decades from twenty to fifty years seem to present about the same number, while from fifty to sixty years the proportion is diminished. Before twenty and after sixty years the number is notably decreased. Jenkins [22] reported one in a child of between three and four months; while somewhere, the reference to which I am unable to give, I have seen an account of a rupture at seventy-nine years. The size of the tumor seems to have little significance, except that increased bulk must make it more liable to trauma. It suffices to say that all sizes have ruptured, that the attendant results have often been as widespread with the small

as with the greater, and that apparently multilocular cysts rupture most often, owing, no doubt, to the many degenerative changes to which they are subject as well as their greater liability to external violence. The escape of cyst contents into the abdominal cavity is generally spoken of as "rupture," a name which it seems best to accept, but on inquiring into the etiology of these unfortunate events we find that the appellation is not strictly correct for all.

Rupture implies a sudden solution of continuity, while we know that certain of the changes which allow of the discharge are of gradual origin and partake of the nature of a perforation, although the final escape may be hastened by violence of muscular action or external traumatism. This difference is perhaps rather fine for clinical use, but it is just as well to recognize the distinction.

Broadly speaking, the factors concerned may be classed under three great headings:

I. — Predisposing causes.
II. — Alterations in the cyst walls.
III. — Trauma.
(*a*) External.
(*b*) Internal.

Naturally various combinations of the above may contribute to the collapse of these new growths.

Predisposing causes. — It is now generally recognized that the difference between unilocular and multilocular cysts is one of degree and not of kind, for in the walls of those clinically monolocular we find small cysts or upon their walls the remains of partitions which have disappeared, showing that the monolocular cysts were once multilocular. The nature of the cyst walls and their contents have clinically an important bearing, for multilocular and parovarian cysts with thin or friable walls are more liable to rupture than the thick, monolocular or dermoid cysts, and again those with viscid, jelly-like contents burst more often than those with the thin, serous contents. Rapid rise of internal pressure may affect the integrity of the wall, as it becomes unable to accommodate itself to the increased strain. Formerly this was said to be brought about by increased secretion, although the more modern view is that cells cannot secrete under extreme pressure.

In addition, we find as causes of increased pressure, rapid growth of large papillary vegetations and hemorrhage into the cavity, while torsion of the pedicle by inducing a passive congestion tends toward the same end. Thornton [23] reports 9 ruptures among 57 cases of torsion. Adhesions, when numerous and firm, hold the tumor in one position and prevent its escaping violence by slipping to one side or accommodating itself more or less to the varying movements of the body. Even a single strong adhesion may be as dangerous as many, for a strain brought upon it by a sudden movement of the cyst may end in tearing the walls.

Changes in the cyst walls. — These play an important part in the rupture of the larger cysts, especially the papillary cystomata. Here the growth often invades the wall, weakens and finally destroys it, producing what was referred to above as a "perforation." Interference with the circulation by thrombosis, as described by Sir Spencer Wells and Mayne,[24] may end in fatty degeneration, calcareous deposits and gangrene with perforation.‡ Hemorrhage into the cyst walls may lead to the same result. Infections easily pave the way for rupture, but this happens proportionately less often as the inflammatory disturbances cause adhesion between the tumor and surrounding structures. But in spite of the safeguards by which nature attempts to prevent fatality, the wall, softened by the inflammatory processes, becomes unable to withstand the internal pressure and gives way before adhesions have made a general peritoneal infection impossible. As dermoids are most liable to these changes, we naturally find them predominating in this class if we exclude other cysts infected by aspiration. Lair [25] considers that the healed scars of old ruptures are weak points, as they contain few if any vessels and are endowed with poor vitality. For this reason they may be the common cause of repeated rupture. Torsion of the pedicle, mentioned above in another connection, may induce changes by shutting off the blood supply, or rendering the wall more frail as it becomes softened by the edema. Finally, perforations may be simple or multiple. Spiegelberg mentions one with thirty openings from the size of the palm of the hand to that of a pea.

Trauma. — Under this heading come many peculiar accidents: Falls on the head, missteps, blows, kicks, jolting of vehicles, straining at stool, vomiting, sneezing, coughing, coitus, compression by bending forward and lastly those which have ruptured under examination, obstetric operations or as the result of tapping with trocars. Pregnancy and parturition seem responsible for a certain number of traumatic cases, either from pressure upon the tumor by the gravid uterus, by torsion of the pedicle or by muscular effort during labor.

Storer in his series found 70 cases of traumatic rupture: Falls, 34 (12 stated to be upon the abdomen); external violence, 36 (kicks, blows, etc.). Tapping, 1; version, 2; examination, 10; forceps, 3; coitus, 1; masturbation, 1,— the rest from various causes.

In quite numerous instances cysts have disappeared under the examining hand, twice in the city of Boston (Chadwick,[26] Storer), and in tapping, the pressure upon the abdomen has been sufficient to rupture a thin or diseased wall.

Symptoms. — In connection with impending rupture certain symptoms of an uncertain nature are present in many instances. Chief among these is pain, extending often over many months and of varying intensity, which according to Hue, Huges Bennet considers due to ulcerations of the walls. Another quite common symptom is rapid increase in the size of the cyst. Both of

‡ See Meredith: Trans. Path. Soc. of Lond., Dec. 16, 1869.

these seem to be present in a sufficient number of cases to warrant being on our guard when they appear in a patient known to have an ovarian tumor.

Nearly all writers agree upon the general symptoms of intra-abdominal rupture at the time of its occurrence, although in a given instance any or all symptoms may be absent. Hofmeier,[27] on the other hand, says that subjective symptoms are rarely present, and Schroeder [28] remarks that rupture of the cystic pockets is of daily occurrence, and generally unperceived. In spite of the opinion of the two previous observers, the cases which we see clinically generally present a certain number of a definite train of symptoms:

(1) A feeling of something giving away and the outpouring of fluid into the abdomen.

(2) Pain: Severe, mild or none at all, but usually considerable with the larger cysts. The character of the fluid seems to have little connection with the causation of pain except in the case of purulent collections and in certain cystomata with gelatinous contents.

(3) Tenderness of the abdomen.

(4) Collapse: Either from intense pain, hemorrhage or what is apparently an irritation of the peritoneum, due to the sudden influx of fluid or to an irritant quality in the fluid itself.

(5) Nausea and vomiting: Probably a sympathetic phenomenon from peritoneal irritation. Palm found it to be present in 4 out of 25 cases.

(6) Fever: Present in most cases after a certain time (Palm).

(7) Disappearance of tumor and change in form of abdomen.

(8) Free fluid in the abdomen, if the quantity is large enough to give signs of physical examination.

(9) Palpation of the remains of the tumor. This is often possible, especially in multilocular cysts, as usually some part remains intact.

(10) Increased urinary excretion. Disse's [29] case passed 25 liters in two days and in some this has been the only symptom, recurring with each rupture.

(11) Tendency to sweat (Simpson [30]).

(12) Loss of friction of tumor upon abdominal wall.

(13) Presence of peptones in the urine. For further consideration of this subject the reader is referred to the theses of Wassermann [31] and Isaackides.[32]

Prognosis. — The mortality of the older writers was based upon non-interference; so that their figures are not suited to the present state of surgery, but they do give us an insight into what happened with no surgical interference.

Looking over the literature for the past twenty-five years, it is amazing how many articles have no reports as to malignancy, the cysts being classed as monolocular, multilocular, etc. Another drawback is the fact that the subsequent history of those who did not die within a short time is wanting, and undoubtedly if we could know this we should find many reported as cured dying later of malignant disease. We are also justified in believing that many more recoveries (both spontaneous and after operation) are reported than the less fortunate results, which are perhaps, in the long run, quite as useful to the clinician as those of favorable outcome with no pathological report. It is for these reasons that the present case has been reported.

The immediate results of rupture are very variable. Small cysts, as we have previously said, often rupture without symptoms and there are numerous instances in which the repeated rupture of larger cysts has had no deleterious effect upon the health of the individual and has eventually brought about an apparently lasting cure. However, for the complete recovery of the patient three essential factors are necessary: First, that the cyst be unilocular; second, benign; third, that its cavity become obliterated. This last may be brought about by retraction and shrinking of its walls, or by the effects of peritonitis (Olshausen). Continued contact may produce agglutination of the cyst walls and ultimately end in its obliteration (Simpson). Olshausen says that the contents of the anatomically unilocular cysts are innocuous whether they spring from the Graafian follicles or from the Wolffian ducts. Spiegelberg and Olshausen also consider the fluid of the colloid tumors, when not contaminated by blood or pus, as generally harmless, but not so readily absorbed by the peritoneum. Still this cannot be considered an absolute rule, as Olshausen cites a case of his own where there were marked signs of peritonitis at the time of operation. The size of the cyst may have a bearing, as the sudden gush of a large quantity of fluid into the peritoneum, even if quite unirritating, may produce shock, and the emptying of the contents of a small cyst has caused fatal peritonitis. Chrobak [33] reports a death from the bursting of one the size of a hazelnut. Nearly all writers agree that the most favorable outlook is in ruptures of the parovarian cysts; but indeed these are not without danger, as Goodell [34] has seen two terminate fatally. The unilocular ovarian cysts are also accorded a favorable prognosis by some, while others like Matthew Duncan, quoted by Tait,[35] reserve spontaneous recovery for the parovarian alone. Certain tumors after numerous ruptures seem to give no further trouble. Palm reports two and Aaronson seven such cases; but it seems probable that in most of these the rent was so large as to give constant drainage to the cavity, the fluid being absorbed by the peritoneum.

It is needless to say that recovery from the papillary cystomata practically never takes place, and unfortunately the rupture of dermoid cysts is almost invariably fatal. Certain individuals survive repeated ruptures, although others recover from some only to die from the results of later ones. Palm reports six deaths after the first rupture and one each after the second and fourth. This difference in the results of rupture in the same case may be explained in several ways: Possibly the first rupture from traumatism and the second from twisted pedicle, in which the prognosis

would naturally be much more grave (Duffner). Hüss [36] considers that different pockets may contain fluids of different character, while Duffner advances the theory that in the interval between two ruptures the contents may change their character. In certain instances, following the gush of fluid into the peritoneum, death takes place from shock before peritonitis has time to develop (see Hue), and in much the same category belong the sudden deaths from the rupture of hemorrhagic cysts (Scanzoni [37]). Storer's case throws some light on the reason for lack of hemorrhage in some instances and the cause of it in others; for the blood vessels with their surrounding connective tissue form the strongest part of the walls, and rupture naturally takes place at the points of least resistance. If, however, as in Storer's case, the tear runs toward the main vessel through the junction of two trunks it is easy to see how laceration of the vessels could occur, while starting in the opposite direction it would probably leave the vessels intact. In the papillomatous cysts decrease of pressure upon the walls may lead to hemorrhage from the veins of the intracystic growths as a result of the loss of support (Greig Smith [38]), and as in the case of Wertheim,[39] may persist for days after the original injury. The duration of life after the accident is very variable, as will be readily seen from what has preceded.

The 22 cases of Nepveu which succumbed were classified: Sudden deaths, 6; death after three to ten days, 10; death after twelve to fifty-five hours, 6.

Duffner found the following length of life in 16 fatal cases: Eleven months, 1; two to fourteen days, 10; seven to twenty-nine hours, 5.

Peaslee has seen 5 cases of rupture of multilocular cysts, 4 of which died within five days.

Storer in an average of the mortal statistics of five writers, containing traumatic and spontaneous ruptures, found a mortality of 41%. In his own series, of which about half were said to be unilocular, 26.8% recovered after varying grades of peritonitis, 44% recovered without peritonitis, and of these 90% were unilocular and "possibly many parovarian."

Aaronson, in 130 intraperitoneal ruptures without operation: Full recovery, 42; death after acute or subacute course, 55; healing after repeated rupture, 7; death after repeated rupture, 14; unknown results, 12.

He also reports 5 ruptures of dermoid cysts with fatal results, and among 121 infected ovarian cysts found 5 intraperitoneal ruptures — all fatal.

The mortality of rupture in the various stages of pregnancy is given by Remy.

During the whole periods of pregnancy and the puerperium 52 ruptures took place in 49 women with the following results: Recoveries, 23; deaths, 24; results unknown, 2. During pregnancy — 19 women with 21 ruptures: Recoveries, 10; deaths, 8; result unknown, 1. During labor — 15 women with 16 ruptures: Recoveries, 7; deaths, 8; During the puerperium — 12 women with 12 ruptures: Recoveries, 4; deaths, 7; result unknown, 1.

The figures of Duffner, based on a series of 31 cases, are much less favorable, as 77% of all cases ended fatally. During pregnancy — total 9: Recoveries, 3; deaths, 6. During labor — total 14: Recoveries, 3; deaths, 11. During puerperium — total 8: Recovery, 1; deaths, 7.

We see that the results in pregnancy grow steadily worse from beginning to close. The trauma and changes in the relations of the pelvic structures which occur during the period of pregnancy, labor and the puerperium, together with the increased facility for infection at such times, render the outlook exceedingly grave.

Treatment. — With the surgeon called to assume the responsibility of such a case lies the question of operation, and though decision is often simple, yet after the rupture of a small cyst with indefinite symptoms it may become a very delicate matter to decide. Unfortunately the size of the cyst gives us no special clue as to its nature, for small cysts, as well as large, have often been the cause of fatal peritonitis. If there is a history of previous ruptures with no untoward results, I think we may reasonably expect a favorable outcome and unless under most favorable surroundings would be justified in waiting. If, however, hemorrhage is taking place or the cyst is supposed to be a dermoid or papillomatous, operation should not be delayed. The dangers of operation in the first two are certainly no greater than those of expectant treatment; and in the last, while the patient may recover for the time being, there is the constant menace of a general invasion of the peritoneum by the cells of the cyst fluid. Indeed monolocular cysts, even with the large number of temporary and apparent final recoveries, seem to me to merit the same treatment if of any size or seen within a few hours after rupture, for their nature is necessarily uncertain and broadly speaking I should consider operation indicated in every case where the surroundings permit.

Spencer Wells had one death in 12 which ruptured before operation, and Knowsley Thornton [40] 3 in 40 cases. Aaronson among 25 operative cases in his series had 4 deaths and 14 recoveries, and Duffner among 70 operative cases figured a mortality of 21%, though many of the deaths were due, as he says, to the enfeebled condition of the patients and to generalization of the growth in the peritoneum.

Soller [41] has proposed paracentesis and, in event of benign fluid, expectant treatment. This proceeding is open to the objection that it is quite as dangerous as an exploratory incision and much less satisfactory. Cysts have been removed during pregnancy without producing miscarriage, but in numerous operations of this nature which it has been my fortune to see, miscarriage has never been avoided. However, considering the high mortality (77%) it hardly seems worth while to take this fact into consideration. If near the end of term and the woman shows signs of labor, Duffner has proposed Cesarean

section and at the same time ablation of the cyst.

As to the question of drainage, there is the usual difference of opinion, Spencer Wells, Hue, Sebileau and Lair favoring its employment in certain cases, while Schroeder, Terrillon and Gross among others consider it unnecessary. Generally speaking, drainage may be said to be indicated in cases with active peritonitis, when the fluid is mixed with blood or is purulent in character and after the rupture of dermoids. Even in some of these there may seem to be no need to resort to its use. When the entire cyst cannot be removed a gauze drain may be used with the hope that peritonitis will eventually destroy the secreting surface. The most important thing is so remove the cyst contents.

In closing I think we may say that the general concensus of opinion is in favor of an early operative treatment and surely the statistics of mortality will bear out such a decision.

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Clinical Department.

A CASE OF TRAUMATIC HEMOPERICARDIUM.

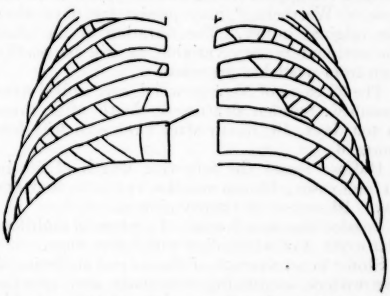
BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,

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ANTONINA P., two and one-half years old, was referred to me by Dr. Galbenewetz, July 10. She had always been well and strong. A month before, while looking out of the window, she had fallen forward on a needle which was on the window-sill. The needle entered the chest near the right edge of the sternum and broke off. The mother thought about half the needle remained inside. She was immediately taken to the Relief Station, where a small incision was made over the point of entrance. Nothing was found. The incision healed in a few days.

She was apparently perfectly well for nearly two weeks after the accident. She then began to appear sick and gradually grew worse. Her symptoms were rather indefinite, however. Her appetite was poor, but she did not vomit. Her bowels moved regularly. She had no cough. She frequently put her hand to her side and said that it hurt. She had ceased to run and play but still walked about a little. She breathed hard almost constantly, the respiration often being grunting in character. She slept very poorly but was able to lie down.

Physical examination. — She was well developed and nourished but rather pale. There was very slight cyanosis of the lips and cheeks. When not disturbed her breathing was fairly quiet, but when she was at all excited or moved about, respiration became difficult and was accompanied by grunting. She was not able to lie flat, but was comfortable when reclining. The alæ nasi moved at times. There was slight retrac-



tion of the lower chest with inspiration, but none elsewhere. The throat was normal. The tongue was fairly clean. The cervical lymph nodes were somewhat enlarged.

The thorax was symmetrical. There was no bulging of the intercostal spaces and none of the præcordia. There was no visible or palpable cardiac impulse. The heart sounds were everywhere diminished. They were heard most distinctly just inside of and below the left nipple, but were also heard feebly over the whole normal cardiac area as well as outside of this area, especially to the left. The sounds were no louder when the child was held face downward. The right border of cardiac dulness was at the right parasternal line, being the same in the third, fourth and fifth right spaces. The upper border was at the junction of the manubrium and sternum. There was dulness, continuous with the cardiac dulness, in the first left space and possibly a little higher. This dulness extended over the whole left front and axilla to the posterior axillary line. There was also dulness in the upper part of Traube's space. The character of the heart sounds was normal and no murmurs were heard. The second pulmonic sound was not proportionally louder than is normal at that age. There was a scar of an incision about one-half inch long at the junction of the sternum and the third right space.

Percussion of the right chest showed nothing abnormal except that the upper border of the liver dulness was in the sixth space. The respiration was normal in character but slightly exaggerated. There was slight tympany in the middle left back; otherwise the resonance was normal. There was no area of dulness in either the right or left back. Respiration was a good deal diminished in the left front and axilla but not changed in character. In the back the respiration was slightly diminished but not changed in character. The vocal resonance and fremitus were not obtained. No rales were heard.

The abdomen was somewhat distended but not tense. There were no evidences of fluid and there was no spasm. The upper border of the liver dulness was in the sixth space. The lower border could not be definitely made out, but there was resistance extending nearly to the umbilicus. There was tenderness on the right side from the costal border nearly to the umbilicus. The area of splenic dulness was not determined. The spleen was not palpable. The extremities showed nothing abnormal. The temperature was 100.6° F., the pulse 130, the respiration 50.

Fluoroscopic examination on July 11 showed the cardiac area of darkness beginning on both sides at the first rib, and extending 2½ cm. to the right and 3 cm. to the left of the median line. On the right side the border ran diagonally downward and outward just inside the right nipple to the junction with the liver



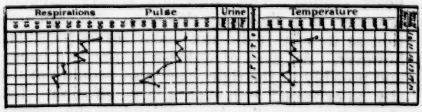
shadow in the sixth space 5½ cm. to the right of the median line. The cardio-hepatic angle was obtuse. On the left the line of darkness ran diagonally downward and outward just outside the left of the nipple and joined the abdominal shadow in the sixth space, 8½ cm. to the left of the median line. The border was less distinct on the left than on the right, but clear lung could be seen on both sides. The cardiac shadow did not change with position, being the same whether the child was lying or sitting. No needle was seen. A dark area, continuous with the liver shadow and probably caused by the liver, extended downward to just above the umbilicus and on the right nearly to the anterior superior spine.

While the physical examination pointed strongly to fluid in the pericardium, the signs were not as characteristic as were those given by the fluoroscopic examination. These were absolutely characteristic of effusion in the pericardium.

A needle was introduced into the fifth right space just at the edge of the sternum. A bloody fluid came out under considerable pressure. As a serous or purulent fluid had been expected, it was thought for the moment that the heart had been tapped. The needle was therefore immediately withdrawn. It soon became evident, however, that the heart had not been wounded, as its action continued regular and there were no signs of collapse. The needle was then introduced again into the sixth left space, 9½ cm. to the left of the median line. Dark, bloody fluid came out under great pressure. A little more than 100 cc. escaped without aspiration; 400 cc. more were then withdrawn by aspiration. Cultures from this fluid remained sterile. The general condition was not at all affected by the operation. The heart sounds became much louder and a friction rub appeared over the lower portion of the pericardium. The child was much relieved by the operation and seemed very much more comfortable. She was able to sleep lying down and take her food well.

Examination on the 13th showed a feeble impulse, visible and palpable in the fifth space. The upper border of cardiac dulness was at the upper border of the third rib, the right border 2½ cm. to the right of the median line in the third and fourth spaces and 2 cm. to the right in the sixth space. The cardio-hepatic angle was acute. The left border of cardiac dulness extended 7½ cm. to the left of the median line in the sixth space, and in the fourth space about 2 cm. outside the nipple line. The left front was still slightly dull. There was no dulness in Traube's space. The heart sounds were loud and normal in character. The pericardial friction rub had disappeared. Air entered both lungs equally. The upper border of liver dulness was still in the sixth space. The lower border was palpable about 4 cm. below the costal border, extending a little more than half way from the costal border to the umbilicus.

Fluoroscopic examination the next day showed the upper border of the cardiac shadow at the lower border of the second rib and the right border about 1½ cm. to the right of the median line in the fourth and fifth



spaces. The cardiac apex was under the sixth rib, 6½ cm. to the left of the median line and ½ cm. to the left of the left nipple. The left side was not quite as clear as the right. The diaphragm in expiration was at the sixth rib on both sides.

The cardiac area shown by the fluoroscope was therefore within normal limits. That given by physical examination was larger than normal. It is difficult to explain this discrepancy, but of course the area shown by the fluoroscope must be accepted rather than that obtained by percussion.

The child's general condition improved very rapidly. She was up and running about on July 14 and was discharged well July 15. The temperature was normal after the 10th. The pulse and respiration continued rapid for two days, then became much slower. Just before the child left the hospital radiographs of the chest were taken which showed that half the needle still remained in the body. The needle evidently entered the body just at the right edge of the sternum in the third space, going diagonally upward behind the sternum, the greater part of the needle being behind the sternum, only the end protruding. Operation was advised but refused.

This case presents many points of interest, among which may be mentioned the unusual cause, the peculiar onset, the comparatively slight degree of the symptoms, the absence of many of the characteristic signs of pericardial effusion and the situation in which tapping was done.

The hemorrhage must, of course, have been due to a lesion of the pericardium caused by the needle. In such a case the symptoms would naturally be expected to come on immediately. The fact that they did not can only be explained on the supposition that the needle did not at first reach the pericardium, but later worked its way to it. It would be expected, moreover, that if the needle scratched the pericardium at one time it would continue to do so and that bleeding would recur after the removal of the fluid. That it did not can best be explained on the supposition that the needle had in the meantime become encapsulated. It would seem possible, however, that the needle might in the future cause a recurrence of the hemorrhage.

It is rather difficult to explain the comparative mildness of the symptoms with such a large effusion. The most plausible explanation seems to be that the greater part of the pressure of the fluid was exerted on the liver and diaphragm, pressing them down, and thus relieving to a certain extent the pressure on the lungs and heart. This explanation seems justified by the position of the liver and diaphragm as shown by the fluoroscopic examination.

When there is a pericardial effusion change of position causes, as a rule, a change in the area of dulness; as a rule, too, bending forward restores or increases the strength of the impulse of the heart sounds. This does not always happen, however, as is shown by this case. No explanation as to why it did not occur seems possible, however. An area of dulness in the left back, and possibly in the right back also, would naturally be expected with such a large effusion. Its absence may possibly be explained on the supposition that the fluid all gravitated downward rather than backward.

While the practicability of tapping the pericardium in the fifth right space close to the sternum has been demonstrated experimentally by Dr. Rotch and a number of other observers, the operation has seldom, if ever, been successfully performed during life. The results in this case show that the pericardium can be safely and successfully reached in this situation. The fluid came out under great pressure, and there is every reason to suppose that it could have been withdrawn as successfully here as it was when the needle was introduced into the sixth left space.

Medical Progress.

REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

PUERPERAL INFECTION.

IN a valuable paper on Obstetrical Therapeutics, [1] Dr. C. M. Green again emphasizes the fact that the treatment of puerperal infection primarily rests with intelligent, painstaking prophylaxis, and that the most effective therapeusis against infection is prevention. He says that in teaching the lesson of obstetrical asepsis, too much emphasis cannot be given to the fact that obstetrics is specialized surgery, that there is no essential difference between surgical and obstetrical asepsis; that in obstetrics as well as in surgery, not alone hands and instruments, but the field of operation, must receive adequate antiseptic preparation. The perfect sterilization of instruments is now possible, reasonable care may give suitable preparation to the vulva and to the contiguous parts which need be touched, but the asepsis of the naked hand is still a matter of uncertainty. The use of the sterilized rubber glove removes all uncertainty in this particular, and the time has come when this addition to our aseptic preparation must be accepted and adopted. He has made careful trial of the sterile glove in all phases of obstetric work from simple examinations to difficult operations, and he is fully convinced that the glove in no way inconveniences or interferes with the operator's work. He says it must be admitted that the teacher and clinician are doing all they can to spread abroad the lessons of puerperal asepsis, but the duty yet devolves upon the profession at large, not only to practice but to preach them.

[1] Med. News, Oct. 10, 1903, p. 692.

OBSTETRICAL ANESTHESIA.

In the same paper Dr. Green says that modern civilization seems to have developed a type of woman who is incapable of bearing the pain of physiological labor. Ether and chloroform often produce uterine inertia, necessitate operative intervention and also predispose to post-partum bleeding. Medullary narcosis he does not regard as a safe and effectual method of relieving the pain of labor. With a mixture of scopolamine hydrobromate and morphia nitrate combined so that ten minims contain $\frac{1}{100}$ gr. of the former and $\frac{1}{4}$ gr. of the latter, administered by subcutaneous injection, he has had experience in sixteen primiparous cases and three multiparous. The cases are reported in detail. As a result of his observations, he says it would seem as if we have a valuable addition to obstetrical therapeusis, the good effects being very marked in primiparæ, but there was no apparent benefit in the few multiparous cases. The mixture was especially serviceable in nervous, excitable and hyperesthetic primiparæ, and the best results are obtained when the drugs are given early in the first stage, as soon as symptoms of nervous irritability manifest themselves.

ECLAMPSIA.

In respect to the treatment of eclampsia, Dr. Green makes no attempt to review the many therapeutic measures that have been found of more or less value, but he speaks briefly of the value of hyoscine (scopolamine) combined with morphine as a means of controlling convulsions, and the extreme nervous excitability observed in certain cases.

He says that ether and chloroform have proved

efficacious in controlling convulsions when promptly administered before the seizure actually occurs; chloral alone or combined with bromides is serviceable in mild cases and as an adjuvant to other sedative measures; Stroganoff's combined use of morphia and chloral has been successful in the experience of some observers. From his recent experience he believes that in hyoscine and morphia in heroic doses we have a potent agent for the control of extreme restlessness and maniacal excitement. He reports three successful cases which have recently been under his care in primiparæ. He begins by giving scopolamine $\frac{1}{100}$ of a gr. and morphia $\frac{1}{4}$ of a gr., repeated in a short time if necessary. These three cases all recovered, and for further details in the treatment the reader is referred to the original article.

TREATMENT OF PUERPERAL FEVER.

Fehling[2] of Strassburg says he believes that collargolum, in intravenous injection, is of value. He has used a sterile 2% solution without ill effects; amounts 2½ to 5 dr. being injected with a fine needle into a vein in the arm. The results varied; some charts showed an immediate fall in pulse and temperature, sometimes a very considerable one, and it is especially noteworthy that this was also accompanied by an improvement in the patient's condition. When the temperature rose again, fresh injections were made, these being often administered daily for eight or ten consecutive days. A permanent fall of temperature occurred once after one injection.

There were some fatal cases even with the injection. In other cases the fatal termination was postponed, as in a case of pyemia with numerous pulmonary abscesses. The remedy seems to lower the temperature and the pulse, and it has a certain value in diagnosis in addition to its good effect upon the patient.

TREATMENT OF PLACENTA PREVIA.

Hammer[3] reports 107 cases from the Wurtzburg Clinic, 19 cases of central insertion, 70 of lateral insertion and 18 of deep-seated placenta. The total mortality among the mothers was 8, or 7.47%, while the fetal mortality was 58, or 54.2%. In cases of placenta previa centralis, Hicks' method of combined version was performed in 14 instances, with 13 maternal recoveries, and with 3 living children. In lateral placenta previa, combined version was performed 40 times with 34 maternal and 13 fetal recoveries. In breech presentations, slow extraction was followed 8 times, with 7 fetal deaths. Artificial rupture of the membranes was practiced 11 times, with 10 fetal deaths. Perforation was necessary but once. In 2 cases metreurysis was done, saving both mother and child. The mortality for both mother and child is lower in cases of deep-seated placenta when rupture of the membranes was the treatment followed. The author calls attention to the impossibility of always being able to perform combined external and internal version without the aid of anesthesia.

[2] Muench. med. Wochenschrift, Aug. 18, 1903.
[3] N. Y. Med. Journ., Oct. 17, 1903, p. 769. Muench. med. Wochenschrift, Sept. 1, 1903.

TUBAL PREGNANCY.

Chase[4] especially dwells on the importance of the general practitioner examining a woman liable to pregnancy bearing in mind the possibility of tubal pregnancy. He says the time has come when such cases will be reported with increasing frequency until the diagnosis in suitable cases becomes recognized as an essential duty of the well-qualified physician. In case it occurs and rupture has not taken place, the sooner the pregnant tube can be recognized and removed the better. In the cases in which the condition points to recent rupture of the intraperitoneal variety and evidences of hemorrhage are present, immediate operation should be done. If evidence is present that the rupture is extraperitoneal — into the broad ligament — and the resulting hematoma is moderate in size, waiting for developments may be justified, as nature may possibly take care of the mass. Finally, while it will continue to happen that ectopic pregnancy will show a very high mortality where no accurate diagnosis has been made until too late, it is true that with a proper appreciation of the grounds on which at least a presumptive diagnosis can be made by the practitioner, an increasing number of lives can be saved.

COMPARISON OF THE SIZE OF THE FETUS AND THE MATERNAL PELVIS.

Lane[5] has made in a considerable number of cases measurements of the maternal pelvis and compared them with measurements of the fetal head and with the fetal weight. The children were weighed and measured at birth, while the maternal pelvis was measured about ten days after labor, as he says owing to relaxation of the soft parts, this appears to be the most favorable time.

He comes to the conclusion that, except in the case of small pelves, there is a parallelism between the size of the child's head (and in particular of the biparietal diameter) and the conjugate diameter of the mother's pelvis, and is the result of natural growth, and is not a pressure phenomenon. The weight of the child, and therefore the size at birth, bears a definite relationship to the size of the mother's pelvis, and this relationship is carried so far that the biparietal diameter of the child increases correspondingly with the conjugate diameter of the pelvis through which it will ordinarily pass at birth. This, he states, may be summed up in the form of a law stated thus: "The child grows in utero in such a manner and at such a rate that at full term his size is proportioned to that of the mother's pelvis through which he has to pass in order to be born."

He also says that hereditary influence appears to have a far greater influence in determining

[4] Brookline Med. Journ., July, 1903, p. 312.
[5] Lancet, Sept. 26, 1903, p. 885.

the size of the child than any of the causes commonly recognized and mentioned, such as the sex, the age of the mother, the number of the pregnancy, or the stature, constitution and health of parents, or even the prolongation of pregnancy.

He further says it is to be noted that the application of this law of proportion receives a tacit acknowledgment in the case of the progeny of different races, but it is the application to individuals which is new.

MATERNAL CIRCULATION IN PREGNANCY.

Nicholson [6] says that there are certain normal changes which occur in the quantity and quality of the blood in pregnancy, and that under normal conditions arterial tone is regulated by the vasomotor center. But there is abundant clinical and experimental evidence to prove that the arterial caliber is influenced in a most profound manner by the internal secretions of the suprarenal and thyroid glands. Suprarenal extract contracts the arterioles very greatly, while the thyroid secretion has been proved to act in the opposite way.

These two internal secretions have opposing and contradictory effects upon the circulation, and in health a balance is struck between them. In normal pregnancy, on the other hand, there are frequent periods during which one or the other gains the upper hand. In general, at the beginning of pregnancy, the functional activity of the thyroid is increased, with resulting dilatation of blood vessels, rapid pulse, palpitation and stimulation of the metabolic processes of the body. If albuminuria is present, it has no grave significance. Other women, usually primiparæ late in pregnancy, will show too pronounced signs of suprarenal influence, as contraction of arteries, diminished metabolism, elevation of blood pressure, decreased urea excretion, etc. These patients are liable to develop eclampsia, and it is of the greatest pratical importance to recognize the high-pressure pulse as an early clinical symptom of impending danger. There should be no doubt as to treatment, the arterioles must be relaxed. In emergency, morphine, aconite and veratrum viride or infusion of saline solution will bring it about. For the pre-eclamptic symptoms, as persistent headache, vomiting and diminished secretion of urine, he has administered thyroid extract to a sufficient number of patients to be convinced of its value.

TREATMENT OF HEMATOCELE FORMED AFTER EXTRA-UTERINE PREGNANCY.

Zweifel [7] remarks that in a pregnant woman a sudden peritonitic attack — great abdominal pain, syncope, vomiting and a very small pulse, without fever, a rupture of a pregnant tube must be at once suspected and immediate operation must be performed. If, however, a hematocele is formed, expectant treatment is to be followed, for in the greater majority of instances the hemorrhage will cease and with rest in bed and with symptomatic attention to the pain and to constipation, the transudate will eventually be absorbed. Should it become infected, it is to be opened and drained from below. In the case of women who are obliged to work and who cannot remain in bed for some time, the hematocele may be opened through the vagina, but Zweifel says he always explains to them that they can be cured without operation.

THE CONDITION OF THE PELVIS IN WOMEN AFTER SYMPHYSIOTOMY.

Tissier [8] reports the after-histories of twenty women who had been delivered by symphysiotomy, during the period of five years. These cases were operated on at seven different hospitals. Only four out of the twenty escaped without some undesirable sequelæ, the remaining sixteen being all more or less damaged by the operation. One patient has been a chronic invalid for five years. Eight have suffered from phlebitis. Ten have had urinary troubles during months or years, incontinence of urine being the most common urinary affection. As a rule, this condition improves with time, but reappears on exertion or with a coughing effort. A number of women have difficulty in efforts of lifting, or in going up stairs.

ARTIFICIAL ABSCESSES IN THE TREATMENT OF PUERPERAL SEPSIS.

Since the method proposed of producing artificial abscesses by the subcutaneous injection of turpentine in septic cases, reports have from time to time appeared of cases successfully treated in this way. Hoff [9] adds two more to the list. The first was a primipara, with fever on the second day after a normal delivery. She grew worse, and on the ninth day he injected 2 cc. turpentine in the thigh. Abscess development showed in two days, and there was slight improvement both in temperature and general condition. The injection was repeated twice, when the improvement became continuous.

The second case was also a primipara with a dry operative labor. Turpentine injections were made on the eighth and eleventh days, and the patient improved steadily till the twenty-fourth day, when the temperature again rose, and two days later she had again a severe rigor. She had bloody urine, but a third injection of turpentine was made. The improvement was resumed and continued. It is stated that it is not very safe to reason from two cases as to the efficacy of any mode of treating puerperal sepsis, but both of these cases were fairly severe with temperatures up to 106° F., and they are enough to attract attention. It is suggested that the abscesses may be local producers of antitoxins or of leucocytes. The method is rather painful and a preliminary injection of morphia is advisable.

(To be continued.)

[6] Brit. Med. Journ., Oct. 3, 1903, p. 807.
[7] N. Y. Med. Journ., Oct. 10, 1903, p. 719. Muench. med. Wochenschrift, Aug. 25, 1903.
[8] Journ. of Obstet. & Cyn. of the Brit. Emp. Vol. iii, No. 5, 1903. Bull. de la Soc. d'Obstet. de Par., Feb. 19, 1903.
[9] Scot. Med. & Surg. Journ., Vol. vii, 1903, p. 356.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-EIGHTH ANNUAL MEETING, HELD IN ALBANY, JAN. 26, 27 and 28, 1904.

(Concluded from No. 8, p. 217.)

(SECOND DAY — *concluded.*)

ALGERNON T. BRISTOW, M.D., of Brooklyn, president.

DIAGNOSIS AND TREATMENT OF GLAUCOMA.

DR. D. B. ST. JOHN ROOSA of New York said that the physician should be on the alert for glaucoma when a person of middle age, or older, came complaining of neuralgia of the eye and dimness of vision, and examination showed a weeping conjunctiva and an area of redness around the cornea without adhesions of the eyelids. The diagnosis became positive if the tension of the eyeball were increased and the use of eserin solution relieved the pain. Aside from the use of eserin, the treatment rested with the specialist.

A STUDY OF THE CLIMATE OF LONG ISLAND.

DR. W. H. ROSS of Brentwood, L. I., read a paper with this title. In it he gave the results of his studies of the meteorological conditions for a period of ten years. The mean summer temperature was 70° F., and the annual range 39°. The relative humidity was low, the yearly average being 72.75. The average number of clear or partly clear days in the year was 300. In addition to these manifest advantages, there was on Long Island a tract of pine forest, six miles wide and sixty miles long. The island was essentially a pier extending a hundred miles into the Atlantic Ocean.

THE TREATMENT OF CANCER BY ITS OWN TOXIN.

DR. P. J. MCCOURT of New York said that this paper was supplementary to one which he had written in 1899. He laid stress on the necessity for avoiding all alcoholic stimulants and partaking of meat very sparingly, and asserted that in 90% of the cases in which this treatment had been tried (the number of cases not being stated) the administration of the toxin was followed by general improvement and decided prolongation of life; also that in 14% indurated glands had become normal, ulcers had healed, and the patients appeared to have been cured, both objectively and subjectively.

ELECTRIC GRAFTING.

DR. J. S. WIGHT of Brooklyn read a paper, in which he referred to certain facts regarding radioactivity and radiotherapy, and, among other things, described what he called "electrical grafting." The method consists in making the surface to be grafted sterile, and then curetting it. While still oozing the grafts are applied, and then, by means of the high-frequency discharge from a pointed electrode, clotting is induced, and the grafts are thereby firmly fixed upon a dry surface. After sponging away the exuded serum the area is dressed with 3% carbolized vaseline.

TUBERCULOUS MYOSITIS.

DR. WILLIAM B. BRINSMADE of Brooklyn reported a case of this very rare disease. The patient, an apparently healthy woman, had been struck, five months before, on the outer aspect of the leg. The examination pointed to a probable diagnosis of sarcoma, but a microscopical examination of a section showed typical tuberculous inflammation. Incision into the affected area revealed soft and pale muscular tissue studded with grayish areas, which, on section, were found to contain the typical caseous material of tuberculosis. This operation was done four months ago, and the patient at the present time continued to enjoy good health.

THE NON-OPERATIVE TREATMENT OF TRACHOMA.

DR. FRANK J. PARKER of New York believed that the operative treatment of trachoma should only be employed in the soft follicular variety, and then chiefly as a means of abridging the period of treatment. The non-operative treatment recommended by him consisted in the vigorous rubbing of the lids three times a week, under cocaine, with a 1 to 500 solution of bichloride and the use at home, twice daily, of a 10% solution of protargol or, preferably, of a solution of argyrol.

APHASIA AND AGRAPHIA.

DR. EDWARD D. FISHER of New York differentiated the various form of aphasia and agraphia, and expressed some doubt as to the correctness of the view that the writing center was located in the second frontal convolution, for the reason that cases were on record in which a lesion of this region did not cause agraphia. There was no doubt, however, about the close relationship between the speaking and writing centers, as shown clinically by the fact that agraphia and aphasia usually coexist.

SYMPOSIUM ON ABDOMINAL PAIN. ABDOMINAL PAIN IN GENERAL.

DR. JOHN H. MUSSER of Philadelphia, Pa., presented this paper. He pointed out that one might not find rigidity of the abdominal muscles in persons with relaxed abdominal walls, even though abdominal pain were present, and that, on the other hand, there might be exaggerated muscular spasm in very muscular individuals though the intra-abdominal condition were a trifling one. Sometimes in pregnant women the occurrence of pain in the upper half of the abdomen ushered in an attack of uremia. In diagnosing abdominal pain, one must remember diaphragmatic pleurisy and diaphragmatic rheumatism; also that in some cases of pneumonia, particularly in children, the signs might point very strongly to an appendicitis. Pyloric spasm might be confounded with gall-bladder disease. In his experience, nearly every case of supposed gastralgia had turned out to be cholelithiasis. The sudden disappearance of pain was often of grave significance, as pointing to profound toxemia.

ABDOMINAL PAIN REFERRED TO THE ABDOMINAL WALL.

DR. JOSEPH D. BRYANT of New York dwelt upon the importance of a knowledge of the nervous supply of the abdominal walls as an aid in diagnosticating pain referable to these parts. For instance, he said, involvement of that portion of the pleura supplied by the dorsal nerves would sometimes give rise to hyperesthesia and rigidity of the abdominal walls. Of course, a lesion confined to the abdominal wall might be mistaken for an intra-abdominal one.

ABDOMINAL PAIN OF INTESTINAL ORIGIN.

DR. FREDERICK HOLME WIGGIN of New York said that, generally speaking, a sharp persistent pain in the abdomen suggested peritoneal inflammation,

period of his greatest usefulness and for the stupid reason that the 'plum should be passed around.'"

HEALTH OF IMPERIAL JAPANESE NAVY.

WE are in receipt of the annual report of the Health of the Imperial Japanese Navy for the year 1901, published, however, in December, 1903. We call attention to this document, not so much because it contains information of great general value as for the reason that it shows the extraordinary care and devotion to detail which is characteristic of this nation, and some of the results of which have recently been seen. The report shows that the mean daily force in the service for the year under consideration was 26,469 persons, being an increase of upwards of 3,000 over the preceding year. Owing to this expansion of the navy there was a slight increase in the number of cases of disease as compared with the preceding years, and it also shows that the general ratio of men sick gives a certain decrease. The total number of cases of disease or injury was nearly 25,000, with an increase of day's sickness, as compared with previous years, due to the increase of the navy since the Japan-China war, and also to a revision of the regulations which has led to an inclusion of milder cases on the sick list than was before the custom. The statistics on this subject of illness in the navy are worked over with very great detail and should prove of interest to the statistician, if not to the general reader.

Following this general statement a summary of disease and injury is appended which covers a very wide range of conditions. This section of the report might be taken as a model for such work anywhere. It is evident that each disease is studied most carefully in all its relations, and therefore it becomes possible to prevent in a measure its occurrence, and thereby keep the navy in a state of high physical efficiency. It is of interest to note that cases of pulmonary tuberculosis occur with great frequency, and tend to increase in spite of preventive measures.

The report consists essentially of statistics, which it is not our purpose to reproduce. We merely desire to call attention at this time to the careful system for the tabulation of disease prevailing in the Japanese navy, which serves also to illustrate the general attitude of preparedness which has characterized all the acts of the Japanese during the events of the past few weeks.

MICROBES IN BOOKS.

A VALUABLE article on microbes in books was recently contributed to the *New York Times Saturday Review of Books* by Dr. Andrew F. Currier, who, although practicing as a gynecological specialist in New York, resides in the neighboring town of Mount Vernon and is president of the board of trustees of the public library there. He states that a great many more cases of the transmission of infectious disease through the medium of books in libraries have probably occurred than have been recorded, and that tuberculosis and scarlet fever have been thus acquired to his own knowledge. Having mentioned that in 1896 Dr. John S. Billings determined that infectious germs in books could be destroyed by the vapor of formalin, and referred to the experiments of other investigators, he said that it was only comparatively recently that a disinfecting apparatus had been devised which could be utilized by public libraries. This, which originated with himself, he describes as follows: To a steel cabinet with heavy plate-glass doors, as nearly airtight as possible, with a capacity for about 250 duodecimo volumes, is attached a generator by means of which formalin vapor is introduced, also another generator for the introduction of ammonia. As the books will not absorb all the formalin introduced, the ammonia is injected to combine with the residue of formalin. While formalin alone is an irritant to the mucous membranes, it is non-irritant when combined with ammonia. The apparatus is not complicated, and can be operated by any one with ordinary intelligence. Having stated that it was thoroughly tested last year under the supervision of the New York Board of Health, Dr. Currier says that it has now been in use for nearly two years at the Mount Vernon Public Library, and has worked satisfactorily, one of the most important results being the establishment of confidence on the part of the public in the innocuousness of the books which are circulated.

MEDICAL NOTES.

LOSS OF THE JOHNS HOPKINS HOSPITAL AND MEDICAL SCHOOL. — As a result of the recent Baltimore fire the resources of the Johns Hopkins Hospital and Medical School are temporarily somewhat seriously curtailed. It is said that the annual income will be diminished about $60,000, owing to the loss of rentals from buildings destroyed by the fire.

PERILS OF HAND SHAKING. — According to

American Medicine a Belgian savant has just published a treatise on shaking hands, which he states is most dangerous, a mutual pressure of the hand being nothing more than an exchange of undesirable microbes, 80,000 of which inhabit every half-inch of the hand. The most dangerous people to shake hands with, it appears, are doctors, surgeons, nurses, hairdressers, butchers, sausage-makers, tripe merchants, tanners and leather-dressers, while the least dangerous person seems to be a worker in metal, because the metal sets up an oxidation which acts as an antiseptic. The safe course is to salute only with our heads and our hats, or always wear gloves.

A Centenarian. — Noah Raby, who claimed to be the oldest man in the world, died on March 1 in the poorhouse of the Piscataway Township, N. J., of which he had been an inmate for nearly forty years. According to his own statement, had he lived to April 1 he would have been one hundred and thirty-two years old, but as there are no records to substantiate this claim, it is probably much exaggerated. He gave the place of his birth as Eastontown, N. C., and said his father was an Indian, while his mother was a white woman. It was his proud boast that he had used tobacco for over one hundred and twenty years. Some two or three years ago he had an attack of measles, and since then he has been totally blind.

Result of Two Lorenz Operations. — Dr. Harry M. Sherman, Professor of Surgery in the University of California, reports in a recent number of the *Journal of the American Medical Association* the results of two cases operated upon by Dr. Lorenz in San Francisco in November, 1902. In the first case the ultimate result did not lead to stable support of the pelvis on the femur, and could not from any point of view be regarded as a success. In the second case examination and radiographs showed conditions which likewise could not be regarded as an improvement. The careful observation of the cases operated upon by Dr. Lorenz, studied by the x-ray and otherwise, will no doubt give important, if not final, information regarding the efficacy of the so-called "bloodless operation."

The Twenty-Fifth Anniversary of the Cystoscope. — On March 9 was the twenty-fifth anniversary of the first demonstration of the cystoscope by Prof. Max Nitze. A committee consisting of Prof. Carl Posner, Dr. Hans R. Wossidlo and Dr. H. Goldschmidt of Berlin had been charged to arrange a celebration of the occasion. A part thereof was the presentation of an address, to which it was proposed to attach the signatures of those who have a general or special interest in genito-urinary diseases. The committee had asked Dr. Ferdinand Valentine of New York to obtain the signatures of those American colleagues who might desire to be thus represented in the address. A congratulatory cablegram preceded them, to the following effect: "Your colleagues and pupils congratulate themselves and the profession on the twenty-fifth anniversary of the demonstration of the cystoscope. Vivat Magister!"

Free Diphtheria Antitoxin in Chicago. — The Chicago Health Department is again prepared to furnish standard diphtheria antitoxin — from the bacteriologic laboratories of the New York Department of Health — to every physician of Chicago in the following manner:

(1) Physicians may obtain antitoxin free from the antitoxin stations of the department for the gratis treatment of their charity cases.

(2) Physicians may have their prescriptions for antitoxin to use in their paid practice filled by any antitoxin station at the following (present) prices:

No. 1 (1,000 units)	$0.75
No. 2 (2,000 units)	1.25
No. 3 (3,000 units)	2.25

Free antitoxin is furnished by the stations on the application of any physician who gives a receipt for the amount of antitoxin supplied, which receipt contains the following certificate: "I hereby certify that the family of this patient is unaole to pay for the antitoxin; that the case is urgent; that I am attending without fee and that I will report the termination of the case on the postal-card form of the health department furnished by the druggist."

In the body of the receipt is given the name of the patient and the exact residence address. This in order to refer what is, presumably, a case of destitution to the Bureau of Charities for such further assistance as, upon investigation, may be found necessary.

It is the object of the department to establish antitoxin stations so located as that there will be one within half a mile of every physician's office or residence, and so prevent unnecessary delay.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, March 2, 1904, there were reported to the Board of Health of Boston

while a dull aching pain pointed rather to involvement of the connective tissue. Tenesmus indicated a lesion of the lower third of the intestinal tract. A diagnosis of appendicitis should never be made until after a careful exploration had excluded disease of the lungs and pleura. When a patient complained of severe pain about the umbilicus, associated with constipation and collapse, one should search the various hernial openings, not forgetting to look for a tumor in the linea alba.

DR. R. F. WEIR of New York directed attention to the new method of examination brought forward by Dr. Ellsworth Eliot of New York, *i. e.*, the determination of the comparative resistance offered by the costal arches on the two sides. With the thumbs directed toward the sternum, the fingers should crowd the costal arches inward toward the vertebral column. An abnormal resistance was often encountered in lesions of the liver, pancreas, duodenum and pylorus. It was now well known that McBurney's point did not accurately represent the location of the vermiform appendix; nevertheless we owed much to McBurney for having pointed out the value of "finger pressure" in eliciting the peculiar tenderness found with appendicitis. When difficulty was experienced in palpating the appendix, the examination could sometimes be facilitated by directing the patient, while in the recumbent posture, to raise the leg and abduct it a little, thus putting the psoas muscle on the stretch, and bringing the appendix nearer the palpating finger.

THIRD DAY, THURSDAY, JAN. 28.

OFFICERS.

The following were elected: President, Dr. Hamilton D. Wey of Elmira; Vice-President, Dr. Joseph D. Bryant of New York; Secretary, Dr. F. C. Curtis of Albany; Treasurer, Dr. O. D. Ball of Albany.

A CASE OF RECURRING MEMBRANOUS STOMATITIS ASSOCIATED WITH ERYTHEMA EXUDATIVUM MULTIFORME (HEBRA).

DR. LOUIS E. BLAIR of Albany reported this remarkable case. The skin affection did not appear until a week after the stomatitis. It remained for a month and left copper-colored spots that were visible for a long time, and were finally succeeded by white contracted scars. The membranous exudation in the mouth was firmly adherent, and a similar deposit appeared coincidentally on the mucous membrane about the anus and glans penis.

THE HOSPITAL CAR; ITS EQUIPMENT, USE AND IMPORTANCE.

DR. W. W. SANFORD of New York described the modern hospital car. The one taken as an example was sixty feet long, was practically dust-proof and was finished entirely in white. The car was divided into two compartments, — a smaller, or accident ward, and an ordinary hospital ward. He urged the importance of the medical advisers of railroad companies using their influence to secure the more general introduction of such cars.

SYMPOSIUM ON NEPHRITIS. RENAL DECAPSULATION FROM THE PATHOLOGIST'S POINT OF VIEW.

DR. J. M. VANCOTT of Brooklyn was the author of this paper. He said that the blood supply of the kidney was an end-artery system, and that, with the exception of a few interlobular arteries and a few arteries entering the cortex, the only communication was through the capillaries. From this it followed that decapsulation subjected the parenchyma of the kidney to loss of nutrition, alteration of pressure and even reversal of the blood current — in other words, a condition usually found in connection with renal infarction. Litten's experiments had demonstrated that the collateral circulation was not capable of restoring the equilibrium of the circulation after decapsulation. It should not be forgotten that when the capsule was torn away, the vessels which usually restore the circulation were destroyed, and that only the capillaries were left. Again, there must be death of considerable portions of the renal parenchyma, because the renal epithelia die in two hours after being deprived of their blood supply, and it required at least four days for the formation of new capillaries. No amount of restoration of the renal circulation could restore the integrity of the cortex. From these facts it followed that decapsulation was positively injurious to the normal kidney and of no benefit to the large white kidney.

SURGICAL TREATMENT OF NEPHRITIS.

DR. WILLIS G. MACDONALD of Albany spoke extemporaneously on this topic. He was inclined to believe that in infectious nephritis, due to local infection with such germs as the gonococcus and the streptococcus, surgery should be of some benefit. In those cases in which suppression of urine followed within thirty-six hours after an operation on the genito-urinary tract, and which almost always terminated fatally under medical treatment, surgery could hold out more hope. By way of illustration, he reported a recent case of this kind in which, after forty-eight hours of suppression of urine, incision of the capsule of the kidney quickly re-established the flow of urine.

GENERAL TREATMENT OF NEPHRITIS.

DR. BEVERLEY ROBINSON of New York said that, in the treatment of acute diffuse nephritis, two cardinal principles of treatment were physiological rest of the diseased part and the removal of some of the strain on its functional capacity by invoking the action of the skin and bowel. At first the patient should have an exclusively milk diet, but after a few days, gruels, jellies and amylaceous articles might be added and the patient should be encouraged to drink freely of spring water. When there was much edema or dyspnea, a saline purge should be given and the skin excited to activity by a hot wet pack. This he very much preferred to the hot-water bath or, in private practice at least, to the hot-air bath, because of its simplicity, effectiveness and freedom from risk. When the urine was scanty and highly albuminous and there was pain over the kidneys, congestion of the kidneys might often be diminished by the application of mustard poultices. High rectal irrigations with Kemp's tube were also useful in promoting diuresis. He had known pilocarpin to cause fatal bronchitis, and considered it too dangerous a drug to use. To avert an attack of uremia he would give nitroglycerin and sweet spirits of niter and, if the case were sufficiently urgent, would resort to wet-cupping or to venesection. For the control of convulsions, chloroform might be required, and occasionally morphine, but he was reluctant to use the latter, particularly in chronic nephritis. For the severe anemia following nephritis, tincture of the chloride of iron, or the tonic diuretic compound known as Basham's mixture, was useful. If the albuminuria should persist, the physician should endeavor to improve the general health, and should carefully regulate the diet and bowels and restrict the amount

of physical effort. The diarrhea of Bright's disease could often be well controlled by prolonged irrigation of the bowel. When the anasarca was extreme it might be necessary to puncture the skin in several places, or even insert a small capillary drainage tube. Incisions should be made and the parts dressed under aseptic precautions. Severe dyspnea might, of course, call for paracentesis of the thorax or of the abdomen. In persons past middle life, digitalis could rarely be safely given unless guarded by nitroglycerin. In chronic cases the importance of even slight subacute attacks of nephritis must not be lost sight of. When the nephritis was due to some underlying constitutional taint, such as syphilis, it was tempting to give iodide of potassium, but although there was high authority for such treatment he had always felt disposed to use this drug rather charily because of its irritating action on the kidney. In the medicinal treatment of persons suffering from nephritis it was well to remember that drugs like the salicylates and the phenol derivatives were usually out of place, because of their known irritant action upon the kidneys. These patients were, as a general rule, better off without alcohol in any form, but in persons who had been accustomed to take alcoholic drinks in moderate quantities for many years he would not adhere too closely to this rule, but would insist that only small quantities be taken, and always with the meals and well diluted. For sleeplessness he preferred the bromides to chloral. With regard to morphine in uremia, he would again insist that while it appeared to be useful in cases characterized by a dilatation of the pupil, it was decidedly dangerous to use it where the contrary state of the pupil prevailed.

Dr. DeLancey Rochester of Buffalo said that in cases of acute suppression of urine he was sure just as good results could be obtained from cupping and leeching of the loin and venesection as from any surgical treatment. He was a firm believer in the efficacy of the hot-air bath, and he had often given it easily and effectively in the humblest homes by making use of two barrel hoops, an "elbow" of stovepipe and an alcohol lamp. If diaphoresis were not easily excited, he gave minute doses of pilocarpin hypodermically, always following this immediately by the hot-air bath. When convulsions threatened, he would give a moderate dose of morphin and follow this by the hot-air bath. In subacute nephritis, the daily washing out of the bowel with saline solution and allowing some of the solution to be retained was a useful measure.

Dr. S. B. Ward of Albany spoke of the great benefit to be derived from the use of arsenic in overcoming the severe and obstinate anemia of nephritis.

THE OBSTETRICAL SOCIETY OF BOSTON.

BY MALCOLM STORER, M.D., SECRETARY.

Meeting of Nov. 17, 1903, the President, Dr. J. B. Swift, in the chair.

Dr. E. B. Young, by invitation, read a paper entitled

THE RUPTURE OF OVARIAN CYSTS.[1]

Dr. W. F. Whitney: At the autopsy table I frequently see cysts, the walls of which contain scars of old ruptures where there were evidently no bad consequences. I remember one case in which there were two large papillary masses entirely uncovered by cyst wall. The wonder is that rupture does not take place more often. Any large cyst has many thin places in its wall apparently ripe for rupture.

[1] See page 235 of the Journal.

Dr. T. M. Rotch: As an example of the possible bad effect of the rupture of very small cysts I can recall a case of death from septic peritonitis following the rupture of a cyst no larger than a pea.

Dr. L. V. Friedman: I remember the rupture of a cyst the size of an egg with no symptoms. As regards the strength of the cyst wall in the preparation of some specimens for the museum I found that cysts would stand much greater tension without rupture than they were probably ever subjected to during life.

Dr. M. Storer: The case which I reported to this society some years ago was briefly that of a young woman whom I allowed some graduate students to examine under ether, in whom I had found an ovarian tumor the size of a man's head. The third examiner ruptured it. Within ten minutes it had been removed, yet during that time the abdomen was pretty well filled with blood from a large vessel torn across at the point of bifurcation. Oddly enough only the other day I was speaking to my students at the dispensary about that case, and the very next case I examined, a very thin-walled woman, had an ovarian tumor the size of two fists, which collapsed under my fingers with only very gentle pressure. She was not conscious of anything happening and the only symptom that followed was menstruation coming on next day, ten days ahead of time, the first time that it had ever happened with her.

I remember being very much perplexed over my first dissecting-room subject, an immensely large woman. On operating the peritoneal cavity I came upon a soft white membrane that proved to be the collapsed wall of a cyst that when full must have weighed fifty pounds at least. I am somewhat surprised at the views Dr. Young has expressed about the results of operating upon ovarian tumors during pregnancy. I have only happened to operate on two cases during pregnancy, once with torsion at six months and once at three months. The pregnancy was not affected in either case. My reading has rather inclined me to feel that pregnancy is an indication for operation rather than otherwise.

Dr. C. H. Hare: I have seen two cases of rupture. The first was a case of Dr. Burrage, in which the cyst was probably ruptured by the nurse preparing the patient for operation the night before. An acute peritonitis was found and the patient died. The second case I operated upon a week ago, twelve hours or so after rupture. A double torsion was present and probably was the cause of rupture. This patient has done well thus far.

Dr. F. A. Higgins: Dr. Green will remember a case seen by several students some years ago. Under the hands of one of them the cyst suddenly disappeared. There were no symptoms.

Dr. J. C. Hubbard read upon the

ETIOLOGICAL IMPORTANCE OF INTESTINAL PARASITES IN APPENDICITIS.

Dr. Whitney: Intestinal parasites in the appendix must be very rare in this part of the world. I have found pin worms only twice and ascaris once, — in this case.

Dr. A. Worcester questioned the value of a vermifuge having any influence on parasites that were hidden away in the appendix.

Dr. Rotch: There is no question but that vermifuges are of great value in many cases when the parasite is in the upper intestine where enamata are of no effect. The giving of vermifuges by the mouth might accordingly have some use in preventing parasites from getting into the appendix.

THE BOSTON

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BACILLUS PRODIGIOSUS.

DURING the last fifty years, the Bacillus prodigiosus has been the subject of many investigations, made from different points of view. The results have been accepted, often without confirmation, and used as a basis for argument or put down in textbooks as facts. Recent investigations, carried on in Turin by Dr. E. Bertarelli,[1] suggest that some of our ideas regarding this micro-organism will have to be modified.

Dr. Bertarelli gives his earlier experiments in detail, summarizing as follows: The prodigiosus causes a fatal toxico-septicemia when inoculated in moderately high doses into animals, especially the guinea pig, rat and mouse. The postmortem appearance of an animal thus treated shows an overwhelming intoxication. By means of the microscope and cultures one observes the undoubted presence and multiplication of prodigiosus in the blood and organs, including those of the embryo. Furthermore, in the passage through an animal, the prodigiosus reacquires, if unpigmented, its red pigment, and this even when one is unable to bring back the characteristic pigment by cultivation on potato. If already pigmented, the culture may even acquire the power of remaining pigmented at 37° C. He uses an intraperitoneal inoculation into a guinea pig of about 2 cu. cm. of a bouillon culture five days old to demonstrate to students a typical septicemia. The virulence of the culture can be increased by passing it through a series of animals in a collodion sac in the abdominal cavity.

[1] Archiv. per le Scienze Mediche, 1903, xxxvii, 1, pp. 1–31.

Further experiments to show how the toxic effects are produced prove that the toxicity of the prodigiosus is specially bound to the bacterial cell; that the soluble products are only slightly toxic, but have hemolytic and chemiotactic properties; that the protein extracted by the method of Koch possesses a toxic power analogous to that of the dead bacilli; and, finally, that the nucleo-proteid, even deprived of the nucleo-istone, is capable of moderate toxic action. The results of the intoxication by prodigiosus ought not, therefore, to be attributed in a special manner, as some authors wish, to trimethylamin or other product of the metabolism of the germ, but are intimately connected with the bacterial cell itself. The prodigiosus will resist a temperature of 80° C. for an hour before being killed.

Coming now to the association of prodigiosus with some other organism, especially streptococcus and the bacillus of anthrax, Bertarelli gives details of further interesting experiments. Inoculation of a mixture of streptococci and staphylococci does not kill an animal except in very large doses. When, however, the mixture is followed by inoculation of sufficient prodigiosus culture (.8 cu. cm. for a guinea pig) the animal dies in twelve to twenty-four hours, and cultures from the blood show abundant prodigiosus and much smaller quantities of staphylococcus and streptococcus. Only when the streptococcus previously possesses a distinct virulence does one secure a very slight exaltation of its virulence by mixing it with prodigiosus — in such a case death is due to septicemia from streptococcus, with presence of this organism in the circulation, while the prodigiosus is very scarce or wanting.

Equal parts of anthrax and prodigiosus culture in dose of 1 cu. cm. of mixture caused death of the guinea pig in eighteen hours with presence of prodigiosus in circulation and very few colonies of anthrax. Another mixture of 1 cu. cm. anthrax and $\frac{1}{8}$ cu. cm. prodigiosus was followed by death of the guinea pig in forty-eight hours due to anthrax. In nearly all those inoculations where prodigiosus was added to anthrax the animals died later than controls inoculated with anthrax alone. There is a distinct antagonism between anthrax and prodigiosus, which can be demonstrated even better in the test tube. These experiments included attempts to immunize animals against prodigiosus (not an easy matter) and subsequent inoculation with anthrax. One such

animal survived thirty hours longer than the control. Further experiments along this line will probably show that so-called "non-specific" immunity is of less importance than previously supposed.

It is certain, therefore, that in the association of attenuated pathogenic organisms with prodigiosus, one ought to speak with great caution of the increase of virulence given by the prodigiosus, since in some cases such increase is absolutely wanting or is problematical, while on the contrary, as follows with anthrax, one can have a diminution of the effect of the infection even in animals so typically receptive as guinea pigs. It follows besides, from the results shown, that in the test tube the antagonism beween prodigiosus and anthrax is very marked.

He does not believe that by these observations he has modified the more essential data that many investigators have recorded on the biology of prodigiosus, and on the significance of the association of microbes; especially since the greater part of the experiments recorded (Roger, Klein, etc.) were done under special conditions. The result that has chief biological interest is the concept that prodigiosus, without being a pathogenic micro-organism, elaborates and possesses toxic substances in truly appreciable amount, and these introduced in distinct but not very great quantities into an animal can give rise to a true septicemia. On this account concepts generally set forth in treatises on prodigiosus ought to be modified in this respect — that the organism should be classed as harmless with regard to accidental infection, but distinctly toxic even without recourse to the very high doses which some authors record.

It is a great mistake to suppose from this, even for a moment, that prodigiosus can have any pathogenic importance for man. Not only is there no record of a fatal case, but it is sufficient to recall its enormous diffusion and the ease with which it comes in contact with us to remove every doubt. Bertarelli has inhaled and swallowed little masses of living bacilli without any effect. He could never produce symptoms by feeding a culture to animals or rubbing it into surface lesions.

Although the prodigiosus is harmless under ordinary conditions, nevertheless its biological properties, its toxicity, its peculiar behavior with other organisms, the pigmentation that it acquires in passing through an animal, are interesting facts which seem to be worth recording.

This addition to our knowledge has a practical application in connection with the mixture of prodigiosus and erysipelas toxins used more or less successfully by Dr. W. B. Coley for the treatment of inoperable sarcoma.

POLITICS AND PUBLIC HEALTH.

It is with much regret that we note in the *Wisconsin Medical Journal* of February last the retirement of Dr. U. O. B. Wingate from the position of secretary of the State Board of Health of Wisconsin. Dr. Wingate had been recognized for several years as a thorough sanitarian and an acknowledged authority upon subjects relating to public health. The *Wisconsin Medical Journal* alludes to the matter as follows: "Dr. Wingate's retirement is not in the interest of the people nor of the public health, nor is it due to any lack of fitness; political reasons only have dictated it. In the language of one of the political members of the State Board of Health, 'this plum should be passed around.'

"We know whereof we speak, when we say that the method of this retirement is discreditable to those members of the State Board of Health who manipulated the deal, discreditable to the state administration and unwarranted by Dr. Wingate's long and efficient conduct of the office. The public health is too vital a matter to be subjected to the vicissitudes of politics."

Instances of successful or of unsuccessful interference by politicians with the work of boards of health are unfortunately of too common occurrence in this country. Political bossism, Addicksism and the selfish greed of office-seeking too often result in the removal of competent officials at the period of their greatest usefulness. It is not necessary to turn backward many pages in the history of public sanitation to witness the practical abolition of the National Board of Health by the withdrawal of its appropriation in 1883; the ill-assorted union of health, lunacy and charity in Massachusetts in 1879, under the panicky fear of Butlerism; the recent overthrow of the health administration of Pittsburg; the unsuccessful attempt to depose a public sanitary official in Michigan. These were all illustrations of such unwise and harmful interference. "If," says the *Wisconsin Medical Journal*, "the politicians of this state were to grasp the force of these facts, and were to consult the best interests of the people, we should not again be treated to the spectacle of the underhanded removal of a thoroughly competent medical official at the

period of his greatest usefulness and for the stupid reason that the 'plum should be passed around.'"

HEALTH OF IMPERIAL JAPANESE NAVY.

WE are in receipt of the annual report of the Health of the Imperial Japanese Navy for the year 1901, published, however, in December, 1903. We call attention to this document, not so much because it contains information of great general value as for the reason that it shows the extraordinary care and devotion to detail which is characteristic of this nation, and some of the results of which have recently been seen. The report shows that the mean daily force in the service for the year under consideration was 26,469 persons, being an increase of upwards of 3,000 over the preceding year. Owing to this expansion of the navy there was a slight increase in the number of cases of disease as compared with the preceding years, and it also shows that the general ratio of men sick gives a certain decrease. The total number of cases of disease or injury was nearly 25,000, with an increase of day's sickness, as compared with previous years, due to the increase of the navy since the Japan-China war, and also to a revision of the regulations which has led to an inclusion of milder cases on the sick list than was before the custom. The statistics on this subject of illness in the navy are worked over with very great detail and should prove of interest to the statistician, if not to the general reader.

Following this general statement a summary of disease and injury is appended which covers a very wide range of conditions. This section of the report might be taken as a model for such work anywhere. It is evident that each disease is studied most carefully in all its relations, and therefore it becomes possible to prevent in a measure its occurrence, and thereby keep the navy in a state of high physical efficiency. It is of interest to note that cases of pulmonary tuberculosis occur with great frequency, and tend to increase in spite of preventive measures.

The report consists essentially of statistics, which it is not our purpose to reproduce. We merely desire to call attention at this time to the careful system for the tabulation of disease prevailing in the Japanese navy, which serves also to illustrate the general attitude of preparedness which has characterized all the acts of the Japanese during the events of the past few weeks.

MICROBES IN BOOKS.

A VALUABLE article on microbes in books was recently contributed to the *New York Times Saturday Review of Books* by Dr. Andrew F. Currier, who, although practicing as a gynecological specialist in New York, resides in the neighboring town of Mount Vernon and is president of the board of trustees of the public library there. He states that a great many more cases of the transmission of infectious disease through the medium of books in libraries have probably occurred than have been recorded, and that tuberculosis and scarlet fever have been thus acquired to his own knowledge. Having mentioned that in 1896 Dr. John S. Billings determined that infectious germs in books could be destroyed by the vapor of formalin, and referred to the experiments of other investigators, he said that it was only comparatively recently that a disinfecting apparatus had been devised which could be utilized by public libraries. This, which originated with himself, he describes as follows: To a steel cabinet with heavy plate-glass doors, as nearly airtight as possible, with a capacity for about 250 duodecimo volumes, is attached a generator by means of which formalin vapor is introduced, also another generator for the introduction of ammonia. As the books will not absorb all the formalin introduced, the ammonia is injected to combine with the residue of formalin. While formalin alone is an irritant to the mucous membranes, it is non-irritant when combined with ammonia. The apparatus is not complicated, and can be operated by any one with ordinary intelligence. Having stated that it was thoroughly tested last year under the supervision of the New York Board of Health, Dr. Currier says that it has now been in use for nearly two years at the Mount Vernon Public Library, and has worked satisfactorily, one of the most important results being the establishment of confidence on the part of the public in the innocuousness of the books which are circulated.

MEDICAL NOTES.

LOSS OF THE JOHNS HOPKINS HOSPITAL AND MEDICAL SCHOOL. — As a result of the recent Baltimore fire the resources of the Johns Hopkins Hospital and Medical School are temporarily somewhat seriously curtailed. It is said that the annual income will be diminished about $60,000, owing to the loss of rentals from buildings destroyed by the fire.

PERILS OF HAND SHAKING. — According to

American Medicine a Belgian savant has just published a treatise on shaking hands, which he states is most dangerous, a mutual pressure of the hand being nothing more than an exchange of undesirable microbes, 80,000 of which inhabit every half-inch of the hand. The most dangerous people to shake hands with, it appears, are doctors, surgeons, nurses, hairdressers, butchers, sausage-makers, tripe merchants, tanners and leather-dressers, while the least dangerous person seems to be a worker in metal, because the metal sets up an oxidation which acts as an antiseptic. The safe course is to salute only with our heads and our hats, or always wear gloves.

A Centenarian. — Noah Raby, who claimed to be the oldest man in the world, died on March 1 in the poorhouse of the Piscataway Township, N. J., of which he had been an inmate for nearly forty years. According to his own statement, had he lived to April 1 he would have been one hundred and thirty-two years old, but as there are no records to substantiate this claim, it is probably much exaggerated. He gave the place of his birth as Eastontown, N. C., and said his father was an Indian, while his mother was a white woman. It was his proud boast that he had used tobacco for over one hundred and twenty years. Some two or three years ago he had an attack of measles, and since then he has been totally blind.

Result of Two Lorenz Operations. — Dr. Harry M. Sherman, Professor of Surgery in the University of California, reports in a recent number of the *Journal of the American Medical Association* the results of two cases operated upon by Dr. Lorenz in San Francisco in November, 1902. In the first case the ultimate result did not lead to stable support of the pelvis on the femur, and could not from any point of view be regarded as a success. In the second case examination and radiographs showed conditions which likewise could not be regarded as an improvement. The careful observation of the cases operated upon by Dr. Lorenz, studied by the x-ray and otherwise, will no doubt give important, if not final, information regarding the efficacy of the so-called "bloodless operation."

The Twenty-Fifth Anniversary of the Cystoscope. — On March 9 was the twenty-fifth anniversary of the first demonstration of the cystoscope by Prof. Max Nitze. A committee consisting of Prof. Carl Posner, Dr. Hans R. Wossidlo and Dr. H. Goldschmidt of Berlin had been charged to arrange a celebration of the occasion. A part thereof was the presentation of an address, to which it was proposed to attach the signatures of those who have a general or special interest in genito-urinary diseases. The committee had asked Dr. Ferdinand Valentine of New York to obtain the signatures of those American colleagues who might desire to be thus represented in the address. A congratulatory cablegram preceded them, to the following effect: "Your colleagues and pupils congratulate themselves and the profession on the twenty-fifth anniversary of the demonstration of the cystoscope. Vivat Magister!"

Free Diphtheria Antitoxin in Chicago. — The Chicago Health Department is again prepared to furnish standard diphtheria antitoxin — from the bacteriologic laboratories of the New York Department of Health — to every physician of Chicago in the following manner:

(1) Physicians may obtain antitoxin free from the antitoxin stations of the department for the gratis treatment of their charity cases.

(2) Physicians may have their prescriptions for antitoxin to use in their paid practice filled by any antitoxin station at the following (present) prices:

No. 1 (1,000 units)	$0.75
No. 2 (2,000 units)	1.25
No. 3 (3,000 units)	2.25

Free antitoxin is furnished by the stations on the application of any physician who gives a receipt for the amount of antitoxin supplied, which receipt contains the following certificate:

"I hereby certify that the family of this patient is unable to pay for the antitoxin; that the case is urgent; that I am attending without fee and that I will report the termination of the case on the postal-card form of the health department furnished by the druggist."

In the body of the receipt is given the name of the patient and the exact residence address. This in order to refer what is, presumably, a case of destitution to the Bureau of Charities for such further assistance as, upon investigation, may be found necessary.

It is the object of the department to establish antitoxin stations so located as that there will be one within half a mile of every physician's office or residence, and so prevent unnecessary delay.

Boston and New England.

Acute Infectious Diseases in Boston. — For the week ending at noon, March 2, 1904, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: Diphtheria 50, scarlatina 26, typhoid fever 8, measles 146, smallpox 0.

LYNN, MASS., HOSPITAL. — The twenty-first annual report of the Lynn Hospital for the year 1903 indicates the increasing usefulness of the institution in every department. The average number of patients in the hospital daily was 59, and during the year 136 more were treated than in the preceding year. A similar increase occurred in the maternity department, where instead of 61 patients 81 were admitted during the year. The whole number of patients admitted during the year was 1,253, with 4,651 new patients treated in the out-patient department. This development of the hospital work has entailed increasing expenses, so that the expenditures have far exceeded the receipts. The need of still further enlargement of the hospital buildings is imperative, and a new ward building, begun in April, it is hoped will soon be completed.

NEW YORK.

NEW BUILDING FOR NURSES. — The managers of the New York Training School for Nurses, in connection with Bellevue Hospital, have purchased a lot 125 by 100 feet on East 25th Street for the erection of a new building. This is directly back of the present quarters of the school on 26th Street, opposite the hospital, and the new building will probably be extended eventually over the entire premises.

NEW BUILDING FOR ST. FRANCIS HOSPITAL. — The Sisters of the Poor of St. Francis, who for thirty-eight years have conducted St. Francis Hospital in East 5th Street, are erecting a new hospital building in the Bronx. The location is at 143d Street and St. Ann's Avenue, directly opposite St. Joseph's Hospital for Consumptives. There will be nineteen large wards, with 304 beds, and forty small wards, a number of which are to be used for private patients.

COMPLIMENTARY DINNER TO DR. ROOSA. — On March 1 a complimentary dinner was given at Delmonico's to Dr. D. B. St. John Roosa, in honor of the twenty-first anniversary of the founding of the New York Post-Graduate Medical School, of which Dr. Roosa has been the president since the beginning. It was attended by more than three hundred physicians and distinguished laymen, and a large loving cup of silver was presented to him on behalf of the faculty of the Post-Graduate School. Dr. William Osler of the Johns Hopkins University acted as toastmaster, and among the other prominent men from a distance were Drs. Clarence J. Blake and Maurice H. Richardson of Boston, Wm. W. Keen and John H. Musser of Philadelphia, and Wm. H. Welch and Howard Kelly of Baltimore. The Rev. Dr. Marvin R. Vincent made the loving cup presentation speech, and the other speakers, besides Dr. Roosa himself, were Drs. Osler, Keen, Blake, Polk of New York; and Mayo of Rochester, Minn.; and Mr. William Potter, a trustee of Jefferson Medical College, Philadelphia.

PUBLIC TUBERCULOSIS CLINIC. — The Health Department is now opening a public tuberculosis clinic, having had constructed for the purpose a convenient building adjoining the headquarters of the department at Sixth Avenue and 55th Street. The clinic includes a registration office, two waiting rooms, two rooms for general examinations, a throat room and an x-ray room. The examinations will be conducted by experts, and the first object aimed at is early recognition and correct diagnosis of cases of pulmonary tuberculosis. Patients will be supplied with circulars containing exact and intelligible instructions, and those in indigent circumstances will be given treatment and furnished with sputum cups, etc., free of charge. In addition, poor patients and those discharged from the public institutions of the city will be cared for at their homes and places of occupation by a special corps of trained nurses, and the cooperation of charitable organizations has been secured to supply food, fuel, ice and other articles where needed. One of the chief duties of these nurses will be to look after the children in the homes of consumptives, with a view to preventing their becoming infected. Suitable cases will be provided for in hospitals and many of those promising recovery sent to out-of-town sanatoria.

MORTALITY IN FEBRUARY. — The weekly reports of the Health Department show that the mortality in the city during the month of February represented an annual death-rate of 22.59, as against 21.22 in January and 20.81 in February, 1903. The corrected death-rate, excluding non-residents and infants under one week old, was 21.68. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from diphtheria and croup increased from 51 in January to 54.75 in February; of deaths from

whooping-cough, from 1.5 to 3.25; from influenza, from 15 to 24.25; from pneumonia, from 226.5 to 263.25; from pulmonary tuberculosis, from 157.75 to 172.25; from diarrheal diseases, from 36.25 to 48.5; from diarrheals under two years of age, from 28 to 38.5; from Bright's disease and nephritis, from 137.25 to 139.5; and from organic heart diseases, from 108.25 to 118. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from bronchopneumonia decreased from 122.25 to 118.5; from acute bronchitis, from 56 to 49; and from cancer, from 56.5 to 49. The rise in the death-rate is due to a considerable extent to the increased mortality from influenza and pneumonia, and in the week ending Feb. 27 the deaths from the latter disease, exclusive of bronchopneumonia, numbered 328, as against 202 in the corresponding week of 1903. In this week the general death-rate reached 24.43. The total number of deaths in the city was 1,797, and in the boroughs of Manhattan and the Bronx (comprising the city before the consolidation of 1899), 110. This is a higher mortality than for any week of the winter season since the notable influenza epidemic of 1892–3. During the month of February there was one death from smallpox, as was the case in January.

Apartments for Physicians. — The statement has been published that the old Madison Avenue Hotel, at the corner of 58th Street and Madison Avenue, which has been unoccupied for several years, is to be remodeled and fitted up with apartments exclusively for physicians. The building is six stories high and covers a plot of ground one hundred by ninety-five feet.

Miscellany.

FOURTH OF JULY TETANUS.

At a meeting of the Berkshire District Medical Society, held Feb. 26, 1904, the following preamble and resolution was passed: *Whereas*, 406 deaths from tetanus were reported as occurring in the United States in July, 1903, as a result of the Fourth of July celebration, 363 of these deaths having been caused by toy pistols loaded with blank cartridges, and 17 by cannon crackers, and

Resolved, that the Berkshire District Medical Society is in favor of any legislation and municipal ordinances which will effectively stop the sale and use of toy pistols, blank cartridges and cannon crackers for such purposes and

. Swift, M.D., Secretary.

RECORD OF MORTALITY

For the Week ending Saturday, Feb. 20, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York	3,908,644	1,682	455	21.43	26.56	2.60	2.60	.30
Chicago	2,021,086	651	177	21.04	31.54	1.84	4.45	1.23
Philadelphia	1,407,968	605	161	19.89	24.53	—	2.82	—
St. Louis	633,806	—	—	—	—	—	—	—
Baltimore	543,229	231	49	20.34	21.08	.86	1.30	.43
Cleveland	444,261	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	159	—	22.00	21.38	1.88	1.88	7.54
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	78	23	21.79	21.79	3.56	3.84	1.28
Boston	617,950	234	55	20.53	22.32	1.78	2.23	—
Worcester	136,925	38	14	5.26	18.41	2.63	—	—
Fall River	119,349	46	19	35.09	19.56	2.17	8.70	2.17
Lowell	104,402	29	8	17.24	24.13	—	—	—
Cambridge	100,998	23	4	17.39	17.39	4.35	—	—
Lynn	78,875	35	12	8.57	—	2.85	—	—
Lawrence	72,348	20	5	25.00	30.00	—	10.00	—
Springfield	72,020	24	4	8.33	—	—	—	4.16
Somerville	70,413	15	4	13.33	20.00	6.67	—	—
New Bedford	68,863	32	11	15.62	25.00	—	3.12	—
Holyoke	50,538	—	—	—	—	—	—	—
Brockton	46,601	7	1	14.30	—	—	—	—
Newton	39,310	11	2	9.09	9.09	—	—	—
Haverhill	39,061	13	4	7.70	—	7.70	—	—
Malden	37,205	10	2	20.00	30.00	—	—	—
Salem	37,138	12	3	—	41.65	—	—	—
Chelsea	34,499	11	6	9.09	18.18	—	—	—
Fitchburg	36,335	8	1	12.50	12.50	—	—	12.50
Taunton	34,577	14	3	21.42	—	7.14	—	—
Everett	30,209	9	1	33.33	—	—	—	—
North Adams	29,301	11	3	22.22	22.22	22.22	—	—
Quincy	26,798	10	6	40.00	30.00	30.00	10.00	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	5	—	20.00	40.00	—	—	—
Brookline	25,576	6	1	—	16.67	—	—	—
Pittsfield	22,270	14	3	21.42	28.56	7.14	—	7.14
Medford	21,256	4	3	—	50.00	—	—	—
Chicopee	21,202	4	0	50.00	—	—	—	—
Northampton	20,314	3	1	—	—	—	—	—
Beverly	15,807	3	1	—	33.33	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	6	0	—	—	—	—	—
Adams	14,745	3	2	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	5	1	20.00	—	—	—	—
Newburyport	14,478	5	1	—	—	—	—	—
Woburn	14,515	4	1	50.00	25.00	—	—	—
Melrose	13,819	5	1	20.00	—	20.00	—	—
Westfield	13,809	5	3	20.00	20.00	20.00	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	4	2	25.00	—	—	—	—
Revere	13,809	1	1	—	—	—	—	—
Framingham	13,974	7	2	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	13,294	—	—	—	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	2	—	—	50.00	—	—	—
Weymouth	11,350	5	1	—	—	—	—	—
Plymouth	11,189	—	—	—	—	—	—	—

Deaths reported, 4,099; under five years of age, 1,056; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 836, acute lung diseases 1,028, consumption 440, scarlet fever 53, whooping cough, cerebrospinal meningitis 9, smallpox 15, erysipelas 15, puerperal fever 20, measles 38, typhoid fever 31, diarrheal diseases 112, diphtheria and croup 81.

From whooping cough, New York 4, Pittsburg 2, Providence 1. From smallpox, New York 1, Philadelphia 13, Pittsburg 1. From cerebrospinal meningitis, New York 3, Pittsburg 1, Boston 1, Lynn 1, New Bedford 2, Marlborough 1. From erysipelas, New York 5, Chicago 2, Philadelphia 3, Pittsburg 1, Boston 3, Pittsfield 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,475, for the week ending Feb. 6, the death-rate was 17.2. Deaths reported, 5,049; acute diseases of the respiratory organs (London) 190, whooping cough 173, diphtheria 48, measles 80, smallpox 1, scarlet fever 39.

The death-rate ranged from 6.0 in Smethwick to 26.6 in Wigan; London 17.4, West Ham 16.5, Brighton 17.8, Southampton 18.8, Plymouth 16.5, Bristol 14.4, Birmingham 16.1, Leicester 13.7, Nottingham 19.7, Liverpool 23.1, Bolton 19.9, Manchester 19.4, Salford 16.6, Bradford 14.6, Leeds 19.5, Hull 14.6, Cardiff 16.9, Rhondda 22.2, Hornsey 6.4, Merthyr Tydfil 22.2.

METEOROLOGICAL RECORD.

For the week ending Feb. 20, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S..14	30.16	22	27	16	77	94	86	N W	S E	7	10	C.	N.	T.
M..15	29.64	22	29	15	100	84	92	N	W	12	22	N.	N.	.74
T..16	29.74	8	15	1	64	64	64	W	W	20	26	C.	O.	T.
W..17	30.04	13	22	4	66	56	61	W	N W	12	22	C.	C.	0
T..18	30.36	19	30	8	59	63	61	N W	W	15	7	C.	O.	0
F..19	30.30	22	36	17	74	93	84	S	N	5	13	N.	N.	.17
S..20	30.51	25	38	14	73	58	66	N	W N W	15	6	C.	C.	T.
☞	30.09		26	11			73							.91

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † indicates trace of rainfall. ☞ Mean for week.

DELAYED PUBLICATION.—The strike among printers and pressmen is responsible for delays in issuing the JOURNAL.

SOCIETY NOTICES.

THE AMERICAN SOCIETY OF CLINICAL SURGERY.—This society, with a membership of about thirty-six, will meet in New York, March 18, at the College of Physicians and Surgeons, Columbia University, 437 West 59th Street, and will subsequently visit various laboratories and hospitals, March 18 and March 19.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, March 23, 1904, at 8 P.M., for the election of a chairman for this section, to hear the report on the mail-vote recommended at the last meeting and for the presentation of the following papers:

(1) Dr. G. S. Whiteside.—"Demonstrations of the Casper-Hirschmann Cystoscope."

(2) Dr. Annie Lee Hamilton.—"A Case of Labor in an Epileptic."

(3) Dr. E. W. Cushing.—"Repair of Lacerations of the Perineum occurring during Childbirth."

W. H. GRANT, M.D., Secretary.

THE HENRY PHIPPS INSTITUTE INTERNATIONAL COURSE OF LECTURES.

THE fifth lecture in the International Course given under the auspices of the Phipps Institute will be delivered by Prof. C. Maragliano of Genoa, Italy, on Monday evening, March 28, at the Witherspoon Building, Philadelphia, the subject being "The Specific Therapy of Tuberculosis and Vaccination against the Disease."

MAZYCK P. RAVENEL, M.D.,
Assistant Medical Director.

RECENT DEATHS.

JONATHAN HENRY ROBINSON, M.D., M.M.S.S., died in Southboro, Mass., March 11, 1904, aged seventy-three years. He was born in Surrey, N. H., in 1831, and has been a resident of Southboro since 1857. In 1888 and 1896 he was a representative in the General Court, and was at one time medical examiner of the Southboro District.

EDWARD A. WALTER, M.D., of the Borough of the Bronx, New York City, died on Feb. 27, from pneumonia. He was graduated from the University and Bellevue Hospital Medical College, New York, in 1899.

OGDEN CURTIS LUDLOW, M.D., of New York, for a number of years past recording secretary of the New York County Medical Association, died on March 2. He was graduated from the medical department of the University of the City of New York in 1883, and afterwards served as an interne of St. Luke's Hospital. Dr. Ludlow had been a reporter of various important medical society meetings for many years, and in this work had always used excellent judgment and discrimination. He was an attending physician at St. Joseph's Hospital at the time of his death. It is said that he contracted typhoid fever in Albany last January, while attending the meeting of the New York State Medical Society.

HOWARD C. RUSSELL, M.D., of the United States Marine Hospital Service, died on March 1, at Stapleton, Staten Island, N. Y., from pneumonia. He was a native of Washington, D. C., and received his academic and medical education at the University of Pennsylvania. He was appointed to the Marine Hospital Service July 1, 1897, and had been stationed at the hospital on Staten Island since 1902.

DAVID L. WALLACE, M.D., of Newark, N. J., died on March 1, at the age of forty-eight years. He was graduated from Bellevue Hospital Medical College in 1875, and for twelve years was a member of the Newark Board of Health, during a considerable portion of that time serving as its secretary.

FRANK E. BAKER, M.D., of Newark, N. J., until recently superintendent of the Newark City Hospital, died on March 1, in consequence of injuries received in a fall upon the ice on the night of Feb. 8. He was forty-eight years of age and was graduated from the College of Physicians and Surgeons, New York, in 1882.

BOOKS AND PAMPHLETS RECEIVED.

The Nutrition of the Infant. By Ralph Vincent, M.D. New York: William Wood & Co. 1904.

Social Diseases and Marriage. Social Prophylaxis. By Prince A. Morrow, A.M., M.D. New York and Philadelphia: Lea Brothers & Co. 1904.

The Practical Medicine Series of Year Books, comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly. Under the general editorial charge of Gustavus P. Head, M.D. Vol. III. Chicago: The Year Book Publishers. December, 1903.

A Manual of Operative Surgery. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., F.R.C.S. New Edition, revised by the author and Jonathan Hutchinson, Jun., F.R.C.S. Vol. II. Illustrated. Philadelphia and New York: Lea Brothers & Co.

Diseases of the Nervous System. A Text-book for Students and Practitioners of Medicine. By H. Oppenheim, M.D. Translated and edited by Edward E. Mayer, A.M., M.D. Second American Edition. Revised and Enlarged. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1904.

Fatigue. By A. Mosso, Professor of Physiology in the University of Turin. Translated by Margaret Drummond, M.A., and W. B. Drummond, M.B., C.M., F.R.C.P.E. Illustrated. New York: G. P. Putnam's Sons. London: Swan Sonnenschein & Co., Ltd. 1904.

Eleventh Annual Report of the State Charities Aid Association to the State Commission in Lunacy. New York. Nov. 1, 1903.

Army Inefficiency. Its Greatest Cause. By A. C. Profeit, M.B. Philadelphia: P. Blakiston's Son & Co. London: J. & A. Churchill. 1903.

A Short Practice of Gynæcology. By Henry Jellett, B.A., M.D., B.Ch., B.A.O. (Dublin University), F.R.C.P.I., L.M. Second Edition. Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. London: J. & A. Churchill. 1903.

Thirty-fourth Annual Report of the State Board of Health of Massachusetts. Boston. 1903.

A New Electro-Medicamental Treatment for Uterine Fibroids. By Samuel H. Linn, M.D. Reprint.

On Movable, or Dropped, Kidney: Its Relation to Diseases of the Nervous System. By C. V. Suckling, M.D. (Lond.), M.R.C.P. London. 1903.

The American Year-Book of Medicine and Surgery. Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery drawn from Journals, Monographs and Textbooks of the Leading American and Foreign Authors and Investigators. Collected and arranged with Critical Editorial Comments by eminent American specialists under the general editorial charge of George M. Gould, M.D. 2 volumes. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Eighteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Transmitted to the Governor, Nov. 28, 1902.

Original Articles.

BLOOD-PRESSURE OBSERVATIONS IN SURGICAL CASES. REPORT OF THE COMMITTEE ON RESEARCH FOR THE DIVISION OF SURGERY, HARVARD MEDICAL SCHOOL, JANUARY, 1904.

Introduction.

On Feb. 1, 1903, the following letter was sent out by the Committee on Surgical Research of the Division of Surgery of the Harvard Medical School to the surgeons of the Massachusetts General Hospital, the Boston City Hospital and the Children's Hospital.

Department of Surgery,
Harvard Medical School, Feb. 1, 1903.

Dear Sir: The recent work by Dr. Crile on surgical shock and the representation by Dr. Cushing of the importance of blood-pressure observations in surgical diagnosis and treatment have produced a widespread interest in these methods of investigation of surgical problems, and one which the Surgical Department of the Harvard Medical School desires to encourage in every way within its power.

To this end the Committee on Surgical Research has organized an investigation, in order to determine, so far as the opportunities in this community will allow, the extent to which blood-pressure observations in surgical cases may be of value from a clinical point of view.

The committee will be glad to receive the suggestions of all surgeons who may be interested in the subject, and they cordially invite your criticism of the following plan:

(1) It is proposed that a representative of the committee be appointed for each of the hospitals here concerned, the Massachusetts General, Boston City and Children's. This representative of the committee will provide the apparatus necessary for the estimation of blood pressure in clinical cases, and will give such instruction to house officers and nurses as may be needed to obtain a general use of the apparatus. He will, when desired, make observations himself and record results. He will then collect and classify the results for each hospital and assemble them for incorporation in a general report.

(2) No surgical case will be reported except so far as its bearing upon the value of blood-pressure observations is concerned, and no case will be reported without the special consent of the surgeon in charge nor without due credit being given to him in the report.

(3) It is hoped that surgeons will avail themselves of this opportunity to procure blood-pressure observations upon their patients, and that by July 1, 1903, so large a number of clinical observations may be available as to permit the publication of reports which will be of value to the profession.

(4) The co-operation of the Department of Physiology has been secured, in order that a rigid criticism may be brought to bear upon these investigations from a scientific point of view.

(5) The points which have appeared to the committee to be of most importance in this investigation are as follows:

(*a*) Does the Riva-Rocci apparatus indicate the true blood pressure with sufficient accuracy for clinical purposes?

(*b*) In what cases and under what circumstances are the errors due to the apparatus so great as to invalidate its advantageous use?

(*c*) What is the value of blood-pressure observations,
(1) As an indication for or against operation?
(2) During the course of an operation?
(3) In after-treatment of surgical cases?

It is the hope and desire of the committee that general co-operation may be secured in this investigation from all the surgeons on duty in the above-mentioned hospitals, and that a large number of observations may be recorded, in order that a just estimate of their value may be obtained.

Should this investigation, as proposed by the committee, appeal to you as worthy of your support, will you kindly sign and post the enclosed postal card before Feb. 7? A representative of the committee will then call upon you, to ascertain more particularly the extent to which you desire to avail yourself of the committee's assistance and to arrange the details of the undertaking.

Very truly yours,
Herbert L. Burrell,
Edward H. Nichols,
Robert B. Greenough,
Committee of the Surgical Department on Research Work.

The response to this letter was practically unanimous, and the committee desires here to express its thanks to the following surgeons who gave permission for the use of their wards for the purposes of this investigation:

Dr. F. G. Balch, Dr. H. H. A. Beach, Dr. J. B. Blake, Dr. W. P. Bolles, Dr. J. T. Bottomley, Dr. E. G. Brackett, Dr. G. W. W. Brewster, Dr. H. L. Burrell, Dr. A. T Cabot, Dr. Farrar Cobb, Dr. E. A. Codman, Dr. W. M. Conant, Dr. H. W. Cushing, Dr. John Dane, Dr. J. W. Elliot, Dr. W. E. Faulkner, Dr. F. B. Harrington, Dr. J. C. Hubbard, Dr. R. W. Lovett, Dr. F. B. Lund, Dr. S. J. Mixter, Dr. G. H. Monks, Dr. J. G. Mumford, Dr. J. C. Munro, Dr. C. A. Porter, Dr. C. B. Porter, Dr. Abner Post, Dr. M. H. Richardson, Dr. C. L. Scudder, Dr. J. S. Stone, Dr. Augustus Thorndike, Dr. Paul Thorndike, Dr. J. C. Warren, Dr. F. S. Watson.

Dr. W. E. Faulkner, for the Boston City Hospital; Dr. J. S. Stone, for the Children's Hospital; and Dr. F. T. Murphy, for the Massachusetts General Hospital, were invited to exercise a general supervision of the work, and to report upon the value of the results. The Riva-Rocci sphygmomanometer was employed as introduced in his country by Dr. Harvey Cushing, and the apparatus was supplied from various sources. Five instruments were provided for use in the different hospitals. In order that the results might bear comparison, although obtained by different observers, a description of the apparatus was issued and general directions for its use were given substantially as follows:

Description of apparatus. — The apparatus consists of a dilatable rubber armlet, 5 cm. in width, encased in a covering of canvas, which can be adjusted to various sizes by means of hooks and eyes. This armlet is connected by rubber tubing to a rubber syringe-bulb with a dilatable reservoir such as is used with the thermocautery. Inserted between the armlet and the bulb, and connecting with the other tube by means of a Y-shaped joint, is another piece of tubing leading to a mercury manometer, to which

is attached a scale graded in millimeters, with the zero point at the level of the mercury. At the distal side of the manometer there is placed an escape-valve closed by a stop-cock, by means of which the pressure in the armlet can be released. The armlet is adjusted loosely to the arm just above the bend of the elbow, with the forearm flexed 30° to 45° and thus held on the same level with the body during the experiment. The armlet is dilated by forcing air from the rubber bulb until the radial pulse is obliterated by the pressure exerted on the brachial artery. At that degree of pressure which just obliterates the radial pulse the height of the column of mercury on the manometer scale is noted and regarded as the systolic blood pressure measured in millimeters of mercury. The reservoir of the manometer should be on the same level as the heart of the patient under examination, and, unless otherwise stated, all pressures are taken with the patient in the prone position. The pulse-rate is counted after the recording of the pressure. After each record the escape-valve should be opened to relieve the constriction before attempting a second reading. In palpating the radial pulse the amplitude of the beat will be noticeably increased during slight compression. With increasing compression it will gradually diminish until lost. Respiratory disturbances and physiological variations may cause some difficulty in getting an accurate reading at the first rise of the mercury column, but by maintaining the level for a few seconds or by the comparison of several readings, this is usually readily obviated. The point at which the pulse can be again palpated after it has been cut off is usually uniformly about 5 or 10 mm. lower than the point at which it disappeared.

The papers presented by Drs. Faulkner, Stone and Murphy represent the conclusions obtained in three different hospitals by different observers. No influence is exerted by the committee on the interpretation of the results, nor upon the manner of their communication. It was only stipulated that the observations be made with the same or similiar apparatus and uniform method of application. The general conclusions of each of these observers are recorded in his report, and a brief summary of the conclusions which appear to the committee to be justified by a consideration of the three series of observations is provided at the end of the communication. In this final summary an attempt is made to answer as correctly as possible the questions propounded in the original circular of the committee.

It is assumed in this communication that the Riva-Rocci sphygmomanometer registers more or less accurately the systolic blood pressure. Proof of this assumpt on, however, so far as is known to this committee, has not yet been produced. Attempts to obtain control observati ns by the use of an actual arterial manometer in man have not been recorded, and the different conditions in animals are not such as to ensure accurate results. It is the opinion of this committee that a series of such observations upon the human subject, or upon monkeys, is greatly to be desired as a test of the Riva-Rocci instrument. Until this is done, however, a clinical estimate of its value, such as is provided in the following report, is all that can be offered.

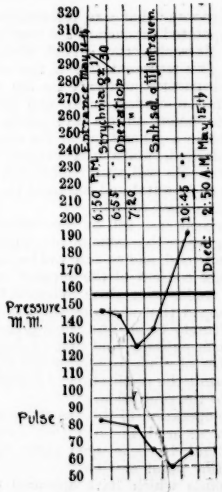
Report on Blood-Pressure Observations at the Boston City Hospital.

By William E. Faulkner, M.D.

The following cases of blood-pressure observations were made at the Boston City Hospital. The apparatus used was the modified Riva-Rocci sphygmomanometer. The conclusion of the writer is that in the general run of surgical cases blood-pressure observations do not point out dangers that could not be foreseen by observations of the patient's pulse, respiration and general condition, but that in head injuries a high blood tension may be an indication of brain compression when the pulse would not lead us to suspect such a condition.

I. J. M., compound fracture of skull. Service of Dr. Watson. Thrown from horse twenty minutes before entrance. Comatose. Responds to pain and stimulus. No paralysis. Knee jerks and plantar reflexes lively. Ankle clonus. Pupils dilated, right the more. Eyes rotated to right. Comminuted fracture left upper mid-parietal region. Brain substance visible.

Operation. — Ether. Loose bits of bone removed. Brain found much lacerated. Considerable hemorrhage from middle meningeal region controlled by packing. Condition poor at end of operation. Died eight hours after injury.

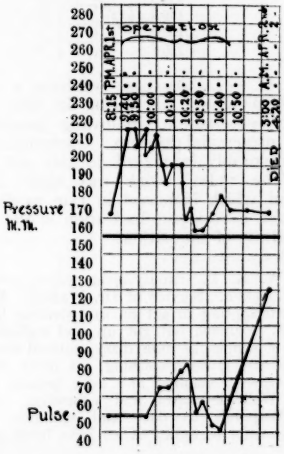


Remarks. — In this case ator ients the drop in the pulse-rate is suggestive of rial ompression from a hemorrhage other than t e. ifrom the middle meningeal, which was co State ed by operation. With this was a conco th of P t rise in blood

pressure which may be attributed to the same cause.

II. A. M., twenty-four years. Service of Dr. Watson. Diagnosis, fractured skull. History not obtained. Unconscious, stertorous breathing. Pupils widely dilated, not reacting to light. Laceration and ecchymosis about left eye; blood clot in nose. Pulse 48, full and regular.

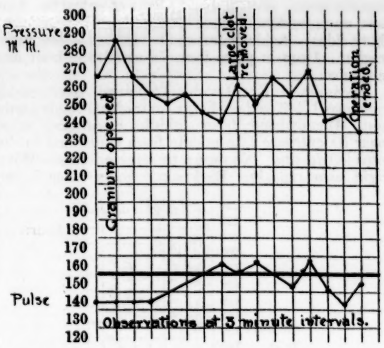
Operation. — Without ether trephined on left side over middle meningeal artery. Dura bulging, not pulsating, incised. ℥ iv black clot removed. Some red oozing. Drainage. No return to consciousness or response to stimulation. Pupils remain dilated. Breathing stertorous. Died twelve hours after accident.



Remarks. — This case showed on entrance a pulse which suggested compression. The blood pressure was not remarkable. During the operation at first the pulse increased in rate and blood pressure in degree. Later both subsided to about the same point as at entrance. Following the operation the pulse took on a rapid increase in frequency until the end came, while the blood pressure remained about the same. Here the pulse told the story.

III. J. B., thirty-nine, fracture base of skull. Service of Dr. Bolles. At 9 A.M. thrown from team by collision with electric car, landing on back of head. Unable to get up, but did not lose consciousness until 1 P.M. Entered hospital 7.30 P.M. Well developed and nourished. Flushed face. Stertorous respiration. Left pupil larger than right and does not react. General spasticity of extremities, more marked on right. Knee jerks and plantar reflexes equal. Kernig's symptom left side. Small hematoma in left occipital region.

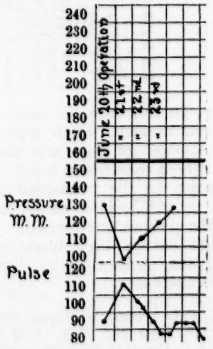
Operation. — Dr. Hubbard. Trephined over right motor area. No epidural clot. No pulsation of dura. Subdural clot extending toward base removed. No return to consciousness. Less stertorous respiration. Edema of lungs. Died twenty-four hours after accident.



Remarks. — This chart shows a high blood pressure, which can be interpreted as indicative of increased intracranial pressure due to hemorrhage, the drop in the early part of the operation being due to removal of a certain amount of this pressure. The pulse, on the other hand, is that of shock and not at all a "pressure pulse." It would seem that in this case the blood-pressure observations were of distinct value in diagnosticating a cerebral condition.

IV. J. K., ten years, depressed fracture of skull. Service of Dr. Cushing. June 20. Hit by ball one hour before entrance. In left frontal region circular depression of skull without external wound. Right pupil larger than left; both react. Involuntary defecation. Vomited once. Somewhat dull.

Operation. — Depression elevated. Small fragments removed. Dura found perforated. Good recovery. June 26. Entirely free from symptoms. Discharged.

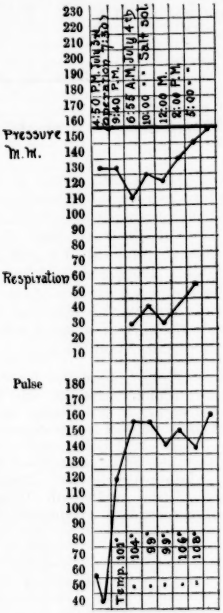


Remarks. — In this case of fractured skull the lesion was apparently limited to bone and dura accompanied by slight concussion, and as one would expect neither pulse nor blood tension shows anything remarkable.

V. Unknown man. Service of Dr. Watson. Found in street. Said to have fallen on sidewalk. Unconscious. Bathed in perspiration. Pupils

equally small, not reacting to light at entrance. Later left pupil widely dilated. Slight spasticity of limbs both sides. Ankle clonus right. Abrasion left frontal region. Drop in pulse from 75 to 45 one hour after entrance.

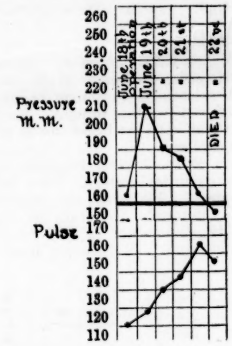
Operation. — Dr. Lund. Trephined over middle meningeal left side. Large extradural clot turned out. Hemorrhage from middle meningeal artery near its entrance into middle fossa controlled by forceps left *in situ*. No return to consciousness. Moved right arm reflexly. Died sixty hours after injury.



Remarks. — In this case the slow pulse of 45 pointed to compression, which was verified by operation. Apparently there was also a serious basal lesion, which manifested itself by the subsequent increase in the pulse-rate and rise in temperature to 108° which came on the next day before the patient succumbed. One might have expected here a high blood pressure to correspond to the "pressure pulse," which, however, was not the case.

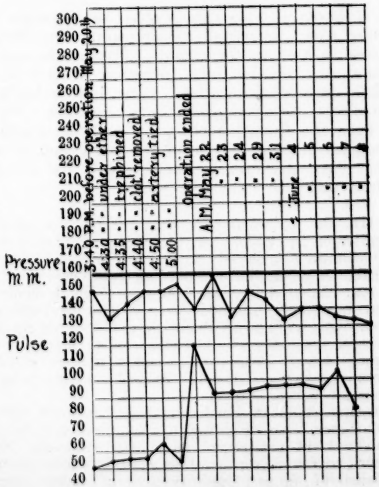
VI. J. T., sixty years, fractured skull. Service of Dr. Cushing. June 18, 1903. Fell down stairs previous night. Unconscious. Supraorbital pressure causes drawing up of right side of face and some movement of all extremities. Spasticity of left arm. Knee jerks exaggerated. Plantar reflex normal. In left parieto-occipital region scalp wound down to bone. Bleeding from left ear.

Operation. — Dr. Lund. Fissured fracture found at seat of scalp wound. Skull trephined. No extradural hemorrhage. Dura slightly pulsating opened, with discharge of 3 oz. of serum. Patient died on fifth day without return to consciousness.



Remarks. — In this case we have a patient with blood tension increasing in first twelve hours of observation, indicating possibly increased intracranial pressure. Operation seemed to act favorably in regard to this one symptom. The pulse, which was rapid at the start and which increased in rate as the case progressed, gave a true indication of the alarming condition of the patient.

VII. W. K. B., twenty-seven years, compound fracture of skull. Service of Dr. Watson. May 20. Fell on attempting to get on car, striking head on pavement. Stunned but got up and walked three-quarters of a mile; became dizzy, entered drugstore, where he was given something; sat down in park, became drowsy, vomited and later became unconscious. Well developed and nourished. Unconscious. Responds to pain and stimulus. Pupils equal and react to light. Knee jerks lively and in-



creased on right. Ankle clonus increased on right. Babinsky on right. Pulse slow and full to the tactile sense. Hematoma over left parietal region. There was a rumor that the patient was an epileptic, which afterwards proved without foundation.

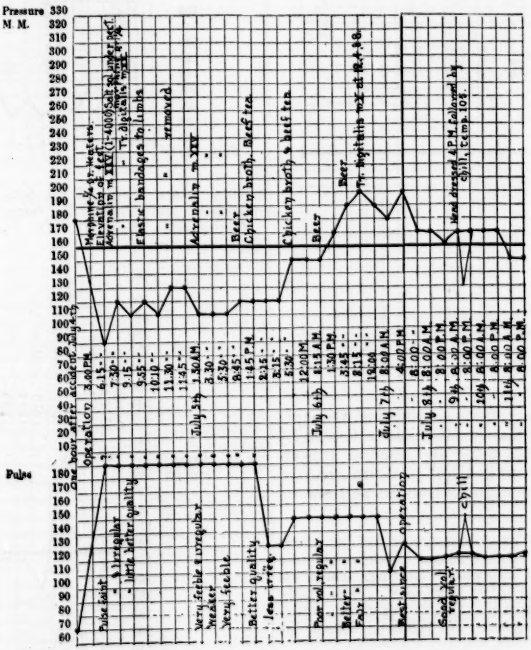
Operation. — Trephined over hematoma. Fissure fracture with slight depression found. Large epidural clot removed. Hemorrhage from middle meningeal controlled by sutures. Some oozing. Dura uninjured. Wound packed. Patient rational on coming out of ether. Drowsiness on second day (May 22). Small secondary hemorrhage. Considerable clot turned out; wound packed. Wound healed by granulation. Complete recovery.

Remarks. — In this case there was a typical "pressure pulse," which disappeared on removal of clot by operative procedure. The drop in the pulse on the second day, with symptoms of drowsiness, led to suspicion of secondary hemorrhage, which was verified on inspection of wound. The blood-pressure observations were not found to be of any value in this case.

VIII. J. H., twenty-three, compound fracture of skull; compound fracture of left humerus; compound dislocation of left astragalus. Service of Dr. Watson. Team on which patient was riding smashed into by express train. Well developed and nourished. Some shock. Conscious and rational. Multiple scalp wounds. Small opening in skin at lower third of upper arm, with fracture of bone at this point. Astragalus dislocated on to dorsum of foot and skin broken through. No paralysis or abnormal reflexes.

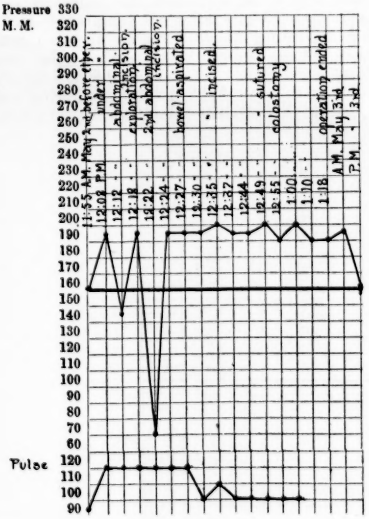
Operation. — Ether. Wounds of arm and ankle cleaned up, deformities reduced and put in plaster. Examination of head revealed fracture with slight depression in parietal region. Skull trephined, large epidural clot turned out. Oozing controlled by packing. Pulse rapid and of poor quality at end of operation.

Remarks. — At entrance the patient's pulse and blood pressure were not remarkable except that the former was slow for a man in moderate shock. Very likely brain compression from blood clot which was subsequently removed had something to do with this. Following operation the patient's condition was that of marked shock for twenty-four hours, as was evidenced by the rapid, feeble, fluttering pulse and low blood pressure. At the end of twenty-four hours the pulse dropped in rate, became better in quality and blood pressure rose. From this time on the patient's condition improved, although the pulse remained rapid for some days. An interesting thing in this case is the lack of reaction on the part of the patient to attempts at stimulation with adrenalin and digitalis, unless the drop in the patient's pulse on July 7 was in part due to the latter drug. The pulse and pressure charts are, roughly speaking, reflections of each other. Both register the patient's condition fairly well.



IX. A. G., fifty-three years, obstruction of bowel. Service of Dr. Watson. Bowels not moved for one week. Some vomiting last few days. No loss of weight. No cachexia. Abdomen slightly tender, much swollen. Tympanites. Temperature 100.

Operation. — By Dr. Watson. Abdomen explored by median incision. Transverse colon opened to let out gas. No tumor found. Left inguinal colostomy. Good recovery.



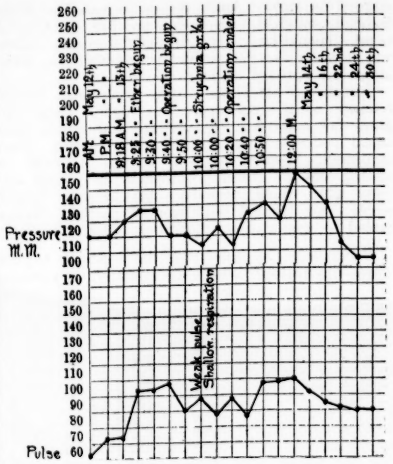
Remarks. — The patient's condition throughout the operation was excellent, as indicated by the character of his pulse and general appearance. The two drops in blood pressure occurred at points in the operation when the peritoneum was exposed.

X. C. S., fifteen years, tuberculosis of post-cecal glands. Service of Dr. Watson. Abdominal pain at times sharp and crampy. Vomiting. Diarrhea. Abatement of symptoms last three days. Pale, poorly developed and nourished. Chest negative. Abdomen lax and tympanitic. No rigidity. Tumor at McBurney's point.

Operation. — Cecum exposed. Enlarged glands alongside; some broken down. Enucleation of glands. Normal appendix removed. Drainage. Pulse feeble in character toward end of operation. Prolonged convalescence. Discharged with granulating sinus.

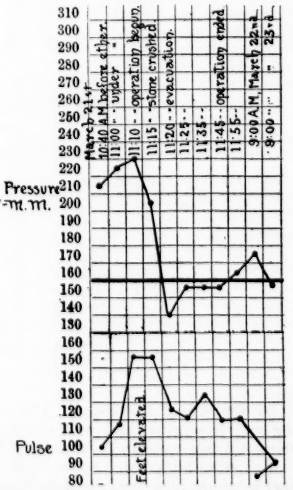
Remarks. — The condition of the patient during the operation, while not alarming, called for stimulation. This was indicated by the feeble character of the pulse and shallow respiration. The blood pressure showed no marked change. It was rather low, as one would expect in an anemic, listless subject.

XI. W. H. P., sixty years, urinary calculus. Service of Dr. Post. Symptoms of calculus for



twenty years. Several previous operations. Well developed and nourished. Some arteriosclerosis.

Operation. — March 21. Dr. Post. Stone crushed. Good recovery.

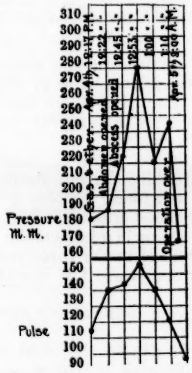


Remarks. — The patient's condition during the operation was excellent. The temporary increase in pulse-rate may well have been due to change in patient's position. The drop in blood pressure to the "normal" corresponds to an improvement in pulse.

XII. H. P., thirty-two years, abscess in abdominal cavity of supposed appendicular origin. Service

of Dr. Watson. Pain in left lower quadrant of abdomen one week. Distinct tumor. Chills.

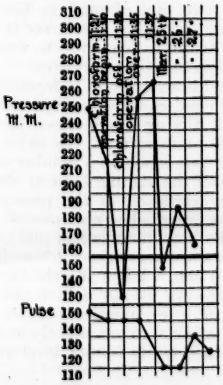
Operation. — Dr. Watson. Abdominal cavity opened and walled off from indurated mass. The latter incised and drained. Appendix not found. Patient in poor condition at end of operation. Good recovery next day. Fecal fistula; otherwise uneventful recovery.



Remarks. — During the operation the pulse increased in rate and to the tactile sense was of poor quality. The patient's condition was such that prolonged search for the appendix seemed inadvisable. The cause of the rapid rise in the blood pressure in this case is not obvious.

XIII. M. C., forty-two years, empyema. Service of Dr. Post. Present illness followed a pneumonia. Patient running a septic temperature. Somewhat delirious. Right side of chest full of fluid. Pulse rapid, but of good quality.

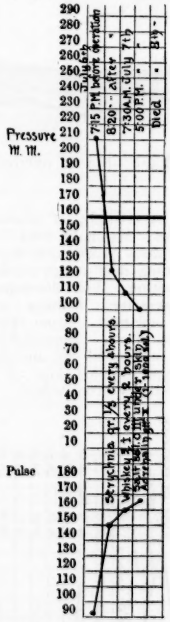
Operation. — Dr. Post. Slight chloroform narcosis. Rib resected. Pus escaped. Salt solution irrigation. Good recovery from operation. Uneventful convalescence. Discharged with slight sinus.



Remarks. — This case shows a marked drop in blood pressure under chloroform anesthesia. The pulse, though rapid, was of good quality throughout.

XIV. O. K., twenty years. Diagnosis, crushed shoulder. Shock. Service of Dr. Watson. Arm run over by steam car one hour before entrance. Well developed and nourished. Pulse slow, fair quality. Marked pallor. Compound fracture of left humerus above middle, with much laceration of soft parts.

Operation. — Dr. Nichols. Under light ether disarticulation at shoulder. Very little hemorrhage. Patient stood operation badly. No reaction to stimulation. Died thirty-six hours after accident.

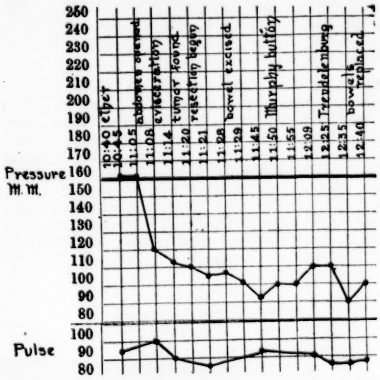


Remarks. — This case shows shock following severe injury, uninfluenced by stimulation. This is quite evident from the pulse curve as well as the drop in blood pressure.

XV. N. P. L., fifty-nine years, carcinoma of intestine. Service of Dr. Cushing. Crampy pains in abdomen for one year. Loss of appetite; troubled with flatus. Slight loss of weight. Fairly well developed and nourished. Skin of grayish hue. Chest negative. Abdomen somewhat distended. Visible peristalsis. Borborygmus.

Operation. — Dr. Cushing. Resection of ileum; Murphy button. "Patient in as good condition after as before operation." Died sixty hours later with onset of sharp abdominal pain and collapse.

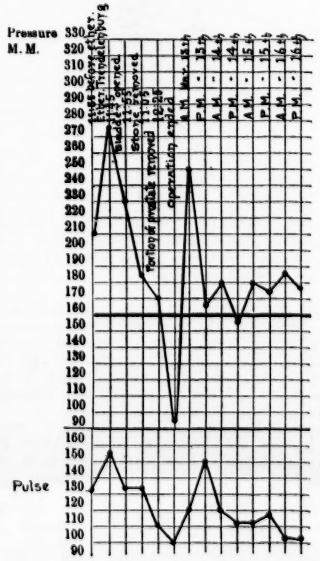
Remarks. — This patient's condition throughout the operation was excellent, although the blood-pressure registration was low except at beginning, where the relatively high registra-



tion was very likely due to excitement in first stage of ether.

XVI. P. M., hypertrophy of prostate. Calculus. Service of Dr. Post. March 12, 1903. Three attacks of hematuria in three years with suprapubic pain. Discomfort in riding over rough road. Lately frequency of micturition. Well developed and nourished. Chest negative. Dulness over bladder region. Prostate enlarged. Urine bloody.

Operation. — Dr. Post. Suprapubic cystotomy. Removal of large amount of clot and stone 1½ inches in diameter. Hypertrophied lobe of prostate removed. Good recovery from ether.



Remarks. — The chart shows a rather variable pulse and pressure curve. The elevation of both during the early part of the operation was likely due to position of patient. The drop in pressure at the end of the operation was without significance as far as could be seen.

REPORT ON BLOOD-PRESSURE DETERMINATIONS MADE AT THE BOSTON CHILDREN'S HOSPITAL.

BY JAMES S. STONE, M.D.

THIS report deals with the results of blood-pressure determinations made at the Children's Hospital with the Riva-Rocci manometer. It deals exclusively with surgical patients, and exclusively with children.

A large number of readings were taken with a view to establishing certain absolute determinations. Age was found to play a very important part in the blood pressure. Sixty to 70 mm. is an ordinary reading in infants under six months; 80 to 90 in a child of two or three years; 100 in a child of five or six years; 110 in a child of nine or ten years.

Sex did not seem to make any material difference.

The general health of the child made a very considerable difference in the pressure. Thus, in a child sick with chronic hip disease the pressure might be 20 to 40 mm. lower than it would be expected to be in a well child of the same age. More acute diseases which profoundly affect the general health, as, for example, tubercular peritonitis, did not, as a rule, cause as marked a change in the blood pressure as did the more chronic wasting diseases. In general, the blood pressure fell in proportion to the duration of the disease and the degree of emaciation and weakness which it had produced. In the very acute diseases, such, for example, as appendicitis, where there had not been time to affect the general health, the blood pressure was not materially altered unless by other circumstances. The emaciation of the wasting diseases makes the pulse more easily felt, but at the same time exposes the brachial artery to more ready compression. These two factors tend to balance each other, although probably the latter is more important and tends to lead one to overestimate somewhat the actual fall in pressure.

Certain conditions entirely independent of the health of the child cause very wide variations in the pressure. Crying often raises the pressure from 20 to 60 or more mm. In order to verify this, readings were made on a number of children before and after the visiting hour of the parents. There was no variation in the pressure in the children whose parents had not come to see them, while in those whose mothers had just gone away, the blood pressure was raised often 40, in one case nearly 70 mm. When the children stopped crying the pressure usually fell to the previous level again within ten minutes or often less, but if the child continued to cry slightly and sob, the pressure returned to its former level very much more slowly.

Struggling, coughing, vomiting and retching likewise increase the blood pressure, so that even before etherization is begun in a patient preparatory to operation, the blood pressure may be materially altered from what might be termed normal for the individual. And during the course of an operation under light anesthesia the readings may be similarly changed. Thus the charts must be read with a knowledge of the condition of the patient while undergoing an operation as well as with a knowledge of the steps of the operation. The crying or struggling which accompanies the recovery from full anesthesia at once very materially raises the blood pressure. This change can be appreciated by the eye, independently of any observation of the pulse. It is not uncommon for an operator to become anxious because of the appearance of a child, especially if considerable blood has been lost. The ether is removed, consciousness of pain returns, the child cries, the color at once improves. These changes can be observed most readily in hare-lip or other operations on the face.

Posture likewise has a very decided influence on the blood pressure, owing to mechanical interference with respiration or with the action of the heart and to the amount of blood supplied to the head. Turning the patient on to the side during an operation may cause a fall in pressure of 10 to 25 mm. — a fall which is promptly overcome when the patient is turned on to the back again. The changes in the relative elevation of the head and trunk, such as occur in the use of the Trendelenburg table, have probably less influence on the pressure in children than in adults, but no definite observations on this matter have been made.

Before speaking of the influence of hemorrhage operative procedures and shock on the blood pressure in children, I must state that the Children's Hospital is without an ambulance service and that since these observations were begun in March I know of no child admitted in a condition of profound shock or after severe hemorrhage — conditions met with every day in the Massachusetts General and Boston City Hospitals. In the Children's Hospital, likewise, severe abdominal or cerebral operations are extremely rare, so that there are but few data from which to judge in those cases in which pressure readings promise to be of most value.

Ether causes practically always a rise in the pressure from 5 to 20 mm., averaging perhaps 10 mm. This rise occurs very promptly and lasts for some time. That it is not a result of the struggle against taking ether is, I think, wholly proved by the fact that it continues so long and that it occurs where there has been no struggle. Occasionally there is a slight fall instead of a rise, apparently due almost always to confusing circumstances.

This primary rise due to the ether was ordinarily followed by a much slower drop in pressure in cases in which the operation itself was so slight that it could exert but little influence in this particular. The operation, if one in which the shock was insignificant, seemed sometimes to cause a slight rise in pressure in addition to the rise caused by the ether, but if the operation were prolonged and the operative procedures were severe, the fall in the pressure seemed a little more marked than it would have been had the child been simply kept under ether during an operation which was prolonged but in which the operative procedures were not such as to cause shock. In ordinary operations this secondary fall did not often bring the pressure down to the starting point before etherization; it practically never brought it lower.

In some operations in which marked changes might be expected for purely mechanical reasons, the blood-pressure readings showed nothing of value. For example, in several operations for empyema the blood pressure showed no marked or definite changes. Probably the coughing and struggling under the light anesthesia counterbalanced any variations due to the changes in the lung and pleural cavity.

Ordinary abdominal operations, such, for example, as the drainage of an abscess and the removal of the appendix, showed little variation in the blood pressure. Sometimes there was a very slight rise, followed by a fall equally slight, and never to the starting point. In the other severe and prolonged operations the blood-pressure readings failed to indicate the onset of shock.

Thus, for example, during an operation for the removal of sarcomatous lymphatic glands from the pelvis, the blood pressure, which before the ether was started was 105 and which rose during the first part of the operation about 15 mm., at the end of the operation, which lasted an hour and a quarter, had not quite fallen back to the starting point. During this operation the pulse-rate seemed a more accurate guide to the child's condition than the blood pressure. Thus, at the end of three-quarters of an hour, in which glands had been dissected out from along the internal iliac vein and high up along the common iliac vessels, the lips had become pale, the color poor, the skin had become cold, the child had begun to sweat profusely, the respirations had become feeble, the pulse-rate had increased 30 beats, and yet the blood pressure had dropped but 5 mm. from what it was during the earliest part of the operation at the time of the primary rise due to the ether and still remained higher than it had been before the ether was begun.

On the other hand, during the two days following the operation the pulse-rate gradually came down, while the blood pressure also became lower, averaging 10 mm. lower than before the operation began and 20 points lower than during the last part of the operation, when the shock seemed greatest.

In one case a laparotomy was performed on a child with a pulse so poor that no reading could be made.

In another case, an operation for empyema, the radial pulse was so poor that the readings had no value whatever.

In the only head case observed, one of concus-

sion due to a fall from a third-story window, the blood pressure showed nothing.

The effect of the fracture of large bones upon the pulse-rate has often been noticed. The respiration is also often affected. The observations made during osteoclasis of the tibia and fibula and osteotomy of the femur showed that the blood pressure was also affected in varying amount. Thus, the pulse-rate immediately after the break increased from 10 to 30 beats, while the pressure, which in one case for the few seconds before the snap came and while the bone was withstanding the tremendous strain put upon it seemed to drop a little, rose from 5 to 30 mm. just after the snap. Comparing the pulse-rate and blood pressure after osteoclasis with what existed before the ether was started, we find the same conditions as exist in any simple operation, namely, a slight increase in the pulse-rate and a slight rise in the blood pressure. The slight amount of shock caused by the fracture of both legs is not indicated by any fall in the blood pressure either immediately or after the preliminary rise.

In the same way during forcible manipulations about the large joints, such as the reduction of congenital dislocation of the hip by the Lorenz method or by the Bartlett machine, which exerts tremendous traction, the blood pressure rose slightly, 5 to 10 mm., while the force was being exerted, but dropped afterward to, but not below, the point at which it had been at first.

Operations involving profound stimulation of the cutaneous nerves, as, for example, the removal of Thiersch skin grafts, caused a slight rise in the pressure, about 5 mm., but the fall in the blood pressure afterward was insignificant at first and later did not correspond with the shock incident to the prolonged operation.

In spite of the failures of the Riva-Rocci manometer to indicate the onset of shock, blood-pressure observations may be of value in preventing the unnecessary use of cardiac stimulants. The observations made at the Children's Hospital suggest that the readings indicate as much the strength of the cardiac systole as they do the general blood pressure. If this is true, the observations bear out the contention of Crile that in shock the heart, at first at all events, performs its work adequately. The Riva-Rocci readings may hasten the abandonment of cardiac stimulation when the heart is performing its work adequately, a stimulation which, if it has an effect at all, tends to fatigue the heart. The readings show nothing which ordinary clinical observation has not shown before, but because they can be recorded graphically they may have a more marked influence. Likewise, the recognition of the fact that stimulation is useless in chronic wasting diseases, such as the forms of surgical tuberculosis, may be hastened.

CONCLUSIONS AS TO THE BLOOD PRESSURE IN THE SURGICAL DISEASES OF CHILDREN.

Ether causes a rapid rise in the blood pressure as indicated by the Riva-Rocci apparatus.

This rise is followed by a very much slower fall in the pressure.

Ordinary operative procedures seem sometimes to increase the pressure slightly.

With the establishment of shock the pressure is lowered, but —

Other signs of shock, the more rapid pulse, the more feeble respiration, the cold, clammy skin, are noted earlier during operations than is a drop in blood pressure.

Conversely, patients practically pulseless at the wrist can withstand operations.

Crying, vomiting, retching, struggling or changes in position affect the blood pressure so much more than ordinary operative procedures as often to render pressure charts practically valueless, unless all these circumstances are noted.[1]

SEPTEMBER, 1903.

REPORT ON BLOOD-PRESSURE OBSERVATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL. BY FRED T. MURPHY, M.D.

OBSERVATIONS were made in the wards of the Massachusetts General Hospital on 100 surgical cases. These cases were to a certain extent selected as being those which promised to give valuable and characteristic data. In these the pressure was taken for as long a time as there seemed to be any hope of a change and at four-hour intervals, or twice a day, though in a few it was possible to obtain only a daily reading. During the operations the pressure was practically watched constantly, and in conditions where sudden changes were probable the readings were taken at intervals varying from one to fifteen minutes. The observations were made in accordance with the instructions detailed in the circular and with the Riva-Rocci apparatus therein described, except that a broad (10 cm.) band with a metal armlet was used in the latter half of the cases examined. The broad and narrow bands were not used on the same case, or, if so, a control observation was made so that the different levels should not be confused. Of necessity, many of the readings were taken by the nurses and house officers, to whom I wish to express my thanks, but in all instances their observations were controlled by mine. Numerous other isolated readings were taken which were considered too scattered and irregular to warrant consideration.

The figures in the following report represent the systolic blood pressure expressed in millimeters of mercury.

There were 28 cases of head injury of varying types, of which 18 recovered and 10 died. These "head cases" are reported with considerable detail, as in injuries of this nature the blood pressure promises to give the most definite conclusions. The 18 cases which recovered will be first considered.

Two typical pressure cases with localized

[1] Many of the blood-pressure observations here reported were made by the house officers of the Children's Hospital, to whom the writer would here express his thanks.

paralysis from middle meningeal hemorrhage were seen only after operation and, as might be expected, the charts are not remarkable, one showing a level at 100 to 80 and the second running along at 120 to 140.

Five cases, all with low-frequency pulses, diagnosticated as concussion, the degree varying from a mild shake-up to complete unconsciousness, gave readings for the first twenty-four hours at levels between 85 and 180.

Five cases of fracture of the base without operation, the diagnosis resting on bleeding from the ears or sub-conjunctival hemorrhage with slow pulse and stertorous respiration and loss of consciousness, showed levels of from 110 to 190 without marked variation, except in one case, where the chart might be misleading as indicating a pressure which demanded interference (see Fig. 1). The abrupt rise of 35 mm. may be interpreted as the result of compression or reaction from the shock of injury. (Service of Dr. Elliot.)

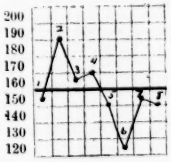


FIG. 1. — 1. In accident room late in P.M. 2. 10 P.M. 3. Midnight. 4. 3 A.M. 5. 6 A.M. 6. 11 A.M. 7 & 8. Succeeding days. Pulse 70 to 80.

Three cases of compound fracture of skull are interesting only from the low level of one, 85 to 70, which was maintained during the afternoon following operation.

A case of probable fracture of the base, which had been operated upon about one year previously for an extensive compound fracture, deserves special mention. Since operation the man had been subject to epileptic attacks, and in one of these he had fallen down stairs, striking on his head. For the first forty-eight hours after the injury he had been at home in a semi-conscious state. During the second twenty-four hours before entering he had complained of pain in the head and had vomited several times. Also it was noticed that the scar, which had formerly been depressed, was bulging. On entrance, the patient was semi-conscious, pulse about 50 and temperature 101. No paralysis. The bulging area in the frontal region pulsated synchronously with the radial, and pressure upon this area caused extreme pain. During the next forty-eight hours there was no change. On the third day a lumbar puncture was done, two test tubes of clear fluid being withdrawn, with the disappearance of the tumor and relief of pain for twelve hours. Unfortunately, no blood pressure was taken at the actual withdrawal of the fluid, but the level of the afternoon reading was not altered. On the fourth day there was a marked facial paralysis and involuntary movements of the bowels. Leeches were applied over the tumor without change to size or in the blood-pressure reading. On the fifth day the clinical condition was the same, but the blood pressure had fallen practically to the level maintained during convalescence. During the next twenty-four hours the improvement was marked. Here the blood pressure seemed to indicate a change before the usual clinical signs (see Fig. 2). (Service of Dr. Warren.)

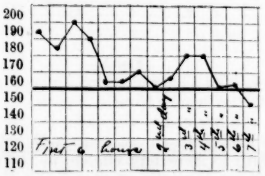


FIG. 2.

A case of tic douloureux was followed during a primary operation for the exposure of the Gasserian ganglion, and six days later during the operation for its removal. Excepting a rise to 180 before taking the anesthetic, the blood pressure did not vary over 10 mm. from the level of 150 in the first operation and 140 in the second, though the hemorrhage was severe and the manipulation of the brain at times extreme. Nor was there any change when the ganglion was divulsed. A second case of operation on the ganglion, with the exception of the rise in pressure due to the ether, held a level of 120 without greater variation than the first. (Both cases on service of Dr. Mixter.)

Of the 10 cases which died, 3 fractures of the base dying within the first twenty-four hours kept a level of 130, 150 and 190 respectively until the moribund drop. This final decline in the blood pressure was constant in all types of cases, the time of its onset varying between wide extremes and with the degree of the general collapse. The temperature, pulse or general appearance of all these cases indicated a hopeless condition.

A case of concussion, so called from negative symptoms, showed a four-hourly chart with a rise from 80 to 110 during the first sixteen hours, though the temperature had gone from 101.8 to 107.

A hopeless fracture of the skull gave a pressure after the operation of 120, with a pulse-rate of 140, and in a case of intracranial hemorrhage on both sides, as proved at autopsy, which had been operated upon with removal of the clot only from one side, the blood pressure was negative, as indicative of local or general condition.

Another case classed as concussion gave the following chart, which had been reduced from a four-hourly to a 2 i. d. Lumbar puncture, with withdrawal of two test tubes of fluid, caused no permanent or immediate change in the pressure. The pulse went to 140 on the eighth day and the

temperature to 104.5, forty-eight hours before death. Died in the afternoon following the last record (see Fig. 3). (Service of Dr. Richardson.)

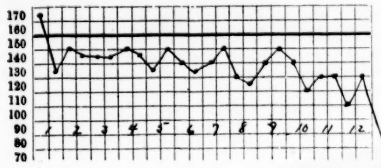


FIG. 3.

The chart of a case in which a blasting accident blew off the whole frontal region, with laceration of the brain and the face, is given because of the low pressure on entrance, on April 6, the failure to show any change at the section of the optic nerve in the operation for the enucleation of the eye and the clearing up of the lacerations and the marked rise which antedated by three days any suggestive change in the pulse or temperature. The nature of the wound was such that an infection was inevitable and at autopsy a pneumococcus meningitis was found. Sepsis rather than compression would seem to have been the cause of the abrupt rise in the blood pressure (see Fig. 4). (Service of Dr. Richardson.)

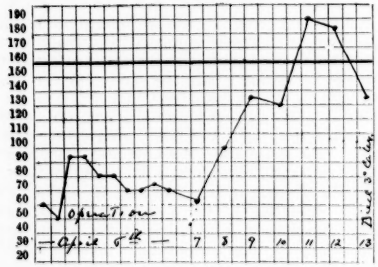


FIG. 4.

A second case of compound fracture of the skull, which from clinical signs died of meningitis, is included for comparison with the preceding. Here the temperature shot to 105 on the 25th and the pulse began its final rise on the 28th. Irregular four-hour chart reduced to a 2 i. d. (see Fig. 5). (Service of Dr. Elliot.)

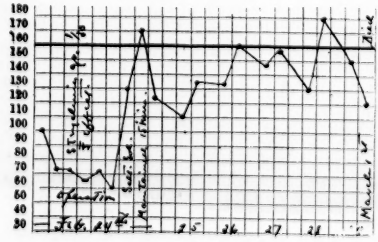


FIG. 5.

The final head case, a fracture of the base with laceration of the brain, as shown at autopsy, gave the following chart, which was reduced from a four-hourly to a 2 i. d. At operation the dura was very tense and cerebrospinal fluid escaped as if under great pressure, but, as can be seen, excluding the elevation at the beginning of the operation, which was probably due to the ether, there was no marked change, the afternoon reading being 10 mm. higher than the morning. On the 28th the temperature went to 105, where it remained and the pulse shot up on the 27th, but until the final drop on the 29th the pressure record is not remarkable (see Fig. 6). (Service of Dr. Elliot.)

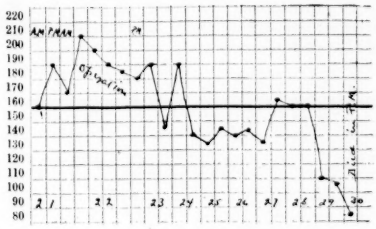


FIG. 6.

The negative charts of the 18 cases which recovered may be considered as confirmatory of the other clinical signs. The failure of the 10 fatal cases to show more diagrammatically any increase in the intracranial pressure or to indicate more clearly the general condition emphasizes the influence of diverse factors in such injuries. That cerebral compression of sufficient degree does, up to a certain point, increase the tension of the pulse, is an accepted fact based on clinical experience. The Riva-Rocci or other apparatus simply records this graphically. The influence of shock, hemorrhage and dyspnea is not, however, to be disregarded. Only by considering their influence on the blood pressure, together with the previous as well as the present general condition of each individual case, does it seem that a safe balance could be struck. The blood pressure here, perhaps, more than in any other type of injury, is the sum total of such varying influences that it must fail to be typical in many instances. Judged from this series, the blood pressures as isolated data are disappointing. They failed to assist materially in determining the surgical condition. No level or curve, excepting the final decline, was constant. The definite, graphic record, however, of a quantity which is accepted as being influenced by variations in the degree of intracranial compression should give valuable data in certain cases when combined with the other symptoms.

Routine cases as seen in the accident room

and wards will be considered under one general group.

The extremes, as taken on accident-room cases, were 65 and 235. The former, a case of railroad accident with a compound fracture of both bones of the right arm and leg, a fracture of the ribs and questionable fracture of the pelvis, made a good recovery. The blood pressure confirmed the clinical diagnosis of extreme shock. The latter, an acute retention, was relieved and walked out. This high tension doubtless went with the arteriosclerosis and probable kidney complication.

Shock in varying degrees is illustrated by the following cases: A superficial and not extensive burn entered with a pressure of 235, which within an hour dropped to 190 to 200, where it remained. A fatal general burn gave, on an half-hourly chart, a pressure of 120 to 105 during the first day, with two drops to 90, which were held for one hour. In the night the radial pulse was too weak to give a reading, but the next day a pressure of about 70 existed. Again at night the pulse was lost and the patient died the next day. Here strychnia, atropin and subcutaneous infusion of salt solution caused no rise. (Service of Dr. Beach.) A case of fracture of the thigh, color good, pulse at 70, had a pressure of 170; another fracture of the thigh, mild shock, pulse of 100, had a pressure of 190; a compound fracture of the thigh, general condition poor, dying that afternoon, gave a pulse of 140 and a pressure of 165; a bad crush of the shoulder with ultimate recovery, but too weak to allow immediate operation, showed the pulse at 110 and pressure 110; a crush of arm and leg, hopeless, dying in a few hours, had a pulse of 110 and pressure of 125, and so on.

Judged by the immediate reaction and the subsequent course with varying degrees of shock, the blood pressure generally confirmed the other clinical signs, but in many instances the height of the level maintained was misleading. Here again the moribund fall appeared to be the one constant feature. The general appearance, respiration and pulse-rate gave in all instances a better idea of the condition than could be obtained by judging from the blood-pressure readings.

The acute abdominal cases observed before operation were only a few, but there was no suggestive level, rise or fall in the blood pressure. No case was observed before and during the onset of acute abdominal infection.

Anesthesia is commonly given at the Massachusetts General Hospital as follows: Nitrous oxide gas is administered with a Bennett inhaler and ether is substituted when the gas anesthesia is complete. The pressure under these conditions is quite typically shown in the following chart; that is, a preliminary rise with the gas, then a fall of 10 to 20, followed by a sudden elevation of 30 to 40 at the first of the pure ether, and then a gradual drop to a level 10 to 20 above the original base line. While this scheme held in general, exceptional elevations of as much as 100 mm. were noted under the early ether (see Fig. 7). (Service of Dr. C. B. Porter.)

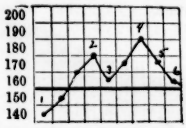


Fig. 7. — 1. Before starting gas. 2. Straining under gas. 3. Under gas. 4. Straining under ether. 5. Easy breathing. 6. Ready for the table.

Charts of different operations are given to illustrate the effect as shown by the blood pressures.

Operations of the type clinically supposed to produce no shock, such as interval appendectomy, hernia, etc., may be exemplified by a chart of simple drainage of the gall bladder (see Fig. 8). (Service of Dr. Beach.)



Fig. 8. — 1. Partially etherized. 2. Beginning operation. 3. Opening belly. 4. Digital exploration. 5. Walling off. 6. Aspirating gall bladder. 7. Probing for stones. 8 & 9. Tying in Mixter tube. 10. Moving gauze. 11. Manipulation of the common duct. 12. End of operation.

In a case of rupture of the spleen in which there was, of necessity, rough manipulation of the intestines and parietes and where a counter-opening was made in the loin, the variations are not striking (see Fig. 9). (Service of Dr. Elliot.)

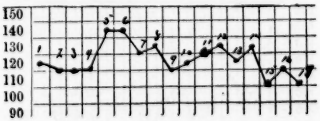


Fig. 9. — 1. Belly wall. 2. Opening belly. 3. Handling intestines. 4. Salt solution washout. 5. Walling off. 6. Salt solution washout. 7 & 8. Rough handling of intestines. 9 & 10. Packing on spleen. 11, 12 & 13. Sewing up. 14. Opening in loin. 15. Packing on spleen. 16. Sewing up. 17. End of operation. Pulse 80 to 120.

The following chart of a case of high amputa-

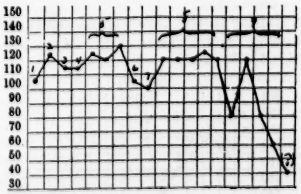


Fig. 10. — 1. Before operation. 2. Primary ether. 3. Circular incision down to bone. 4. Sawing bone. 5. Tying off and applying dressing. 6. End of operation. 7. In ward immediately after operation. 8. Salt solution intravenously, 1½ pints, level maintained eleven minutes. 9. Following at five-minute intervals. Pulse 90 to 140. Patient died a few minutes after the last record.

tion of the arm, which was all but in extremis from sepsis, is remarkable only from the graphic fall in the blood pressure when the patient was dying (see Fig. 10). (Service of Dr. Warren.)

An omentopexy gave the following record (see Fig. 11): (Service of Dr. Conant.)

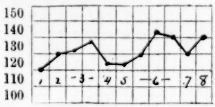


FIG. 11. — 1. Belly wall. 2. Opening belly. 3. Exploration. 4. Rubbing peritoneum. 5. Rubbing liver. 6. Sewing up omentum. 7. Sewing up. 8. End of operation. Pulse 110 to 100.

A fatal strangulated hernia in an old man who seemed to be in a very bad condition, color poor, pulse 120 and respiration labored, gave this chart (see Fig. 12): (Service of Dr. Beach.)

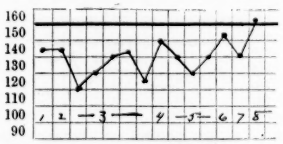


FIG. 12. — 1. Sac opened. 2. Manipulation of bowels. 3. Resecting gut and putting in Murphy button. 4. Two minutes after atropin gr. $\frac{1}{75}$ subcutaneously. 5. Sewing up mesentery and closing abdominal wall. 6. Straining under light ether. 7. End of operation. 8. One hour later in ward. Pulse 95 to 120.

A general peritonitis in a child of seven, in an extremely bad condition, gave this record (see Fig. 13): (Service of Dr. Warren.)

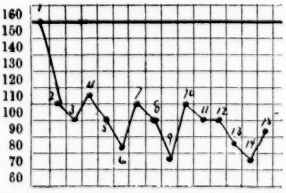


FIG. 13. — 1. In accident room. 2. Just on table. 3. Belly wall. 4. Straining under light ether. 5. Exploration. 6. Salt solution washout. 7 & 8. Removing appendix. 9. Washout. 10. Three minutes after strychnia gr. $\frac{1}{30}$ subcutaneously. 11 & 12. Wicks. 13 & 14. Sewing up. 15. Close of operation. Pulse 140 to uncountable.

A case similar to the above in an adult showed the following chart (see Fig. 14): (Service of Dr. C. B. Porter.)

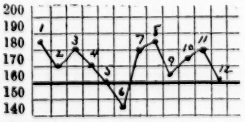


FIG. 14. — 1. Under ether. 2. Belly wall. 3. Peritoneum opened. 4. Exploration. 5. Exploration of pelvis. 6. Salt solution washout. 7 & 8. Wicks. 9. Further exploration. 10. Sewing up. 11. End of operation. 12. In ward one hour later. Pulse 106 to 120.

A case of extra-uterine pregnancy with rupture and intraperitoneal hemorrhage reacted in this diagrammatic manner (see Fig. 15): (Service of Dr. Warren.)

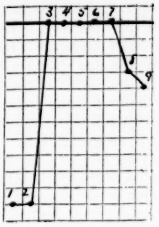


FIG. 15. — 1. Opening belly. 2. Straining under ether. 3. After one pint salt solution intravenously. 4. Right tube removed; salt solution up to 1½ pints. 5. Salt solution up to 2 pints. 6. Intestines washed out of belly. 7. Sewing up. 8. End of operation. 9. Thirty minutes after operation. Pulse of 130 to 150.

The blood-pressure curve during the operations did not give so accurate an idea of the general condition as the routine clinical signs, — pulse, respiration and general appearance. Changes were noted earlier by judging from the composite picture, and as substantiated by subsequent course the blood pressure alone might be most misleading. This was true both as indicating a good as well as a poor condition.

Operations on the pelvis, necessitating the Trendelenburg position with its changing levels, so confused the readings that they were useless.

Isolated cases of possible interest were: An adrenal tumor with metastasis in the brain, with sufficient pressure to press forward through the vault, ran along at 105 to 115; a kidney decapsulation ten days after operation showed a level at about 140; a case of nephrectomy, which later died, gave some months after the operation a pulse of 80 and a pressure of 210 to 280; two cases of tetanus had, as might be expected, high pressures of from 210 to 240; a case of septicemia, which was running a temperature of from 100 to 107, and which was being treated by intravenous injections of formalin, ran an irregular daily chart of from 90 to 120 until the final drop, the temperature seeming to have no close relation to the pressure; a fatal case of hemorrhagic jaundice held a level of 140 to 120, with a pulse at 150 to 160 without noticeable change from strychnia, atropin or gelatin subcutaneously; a polyp of the uterus, which had caused such hemorrhage as to reduce the hemoglobin to 40% gave a pressure of 205 and a pulse of 125. This last case might be interpreted either as showing the pulse to be much stronger than was estimated by digital compression or as giving a high blood pressure which was due to the size of the arm and other conditions, and which did not estimate accurately the pulse force. The case went on to final recovery, but, on the day when the pressure of 205 was recorded, she was in such poor condition that the prognosis was decidedly doubtful. Dr. Torbert very kindly took observations for me on six cases of eclampsia at

the Boston Lying-In Hospital. During the convulsions the blood pressure ran along between 225 and 240. After the acute stage the pressure fell gradually to levels varying between 140 and 160, the changes taking place in accordance with the clinical symptoms.

The chart of a moribund septic case, in which 350 cc. of adrenalin — 1–10,000 — was used, is also of interest (see Fig. 16). (Service of Dr. Elliot.)

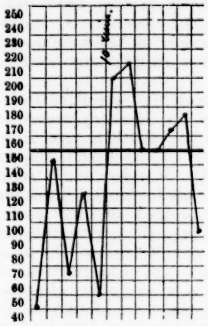


Fig. 16. — Five-minute intervals except where marked. Died thirty minutes after last reading. Pulse 150 to 160.

The peritonitis and other cases after operation showed nothing remarkable. The levels ran along without marked variation at 90 to 160. Changes in the condition were noted earlier and with greater accuracy by the usual clinical observations than from the blood pressure. The moribund fall was the one change which was universally found. In no case did the blood pressure give information regarding the patient's surgical condition which was not obtainable from the pulse, respiration, temperature and general appearance.

Strychnia and atropin subcutaneously did at times, as seen in some of the foregoing charts, cause a slight change in the level of the blood pressure, but, as a rule, in sick cases no marked variation in the curve was noted.

Salt solution in favorable cases, as in the extra-uterine before mentioned, raised the level materially, and this gain was usually held for about 25 or 30 minutes. In some instances, however, the infusion failed to check the fall, or, if there was a rise in blood pressure, it was maintained only momentarily. Where so large an amount as two pints of salt solution was given intravenously, the maximum elevation of the blood pressure was reached during the first pint.

The following chart will serve to illustrate the reaction after intravenous salt solution in favorable cases (see Fig. 17). (Service of Dr. A. T. Cabot.)

These statements are based on the results of blood-pressure observations which were made on 100 surgical cases, including 28 cases of head injury, and may be summarized as follows:

The Riva-Rocci manometer was employed in every case. A 10 cm. armlet and metal cuff

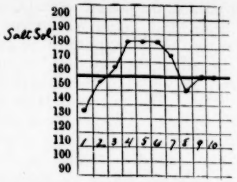


Fig. 17. — 1. Ordinary level. 2. Preparing arm. 3. One half pint. 4. One pint. 5. One and three-fourths pints. 6. Two pints. 7. Two minutes after infusion, level maintained twenty-five minutes. 8. Thirty-five minutes after infusion. 9. Forty-five minutes after infusion. 10. One hour after infusion.

was used in approximately one-half of these observations, and gave more satisfactory results than did the narrow armlet.

The blood pressure in the majority of cases confirmed the estimate of the clinical condition of the patient obtained from the pulse, temperature and other physical signs.

Deductions regarding the clinical condition drawn from the blood-pressure observations did not agree in a certain number of instances with the conclusions based upon the results of the routine clinical observations. The subsequent course of the cases proved the blood-pressure readings to have been misleading.

The blood-pressure observations did not in any case show facts that proved to be of importance in determining the diagnosis, treatment or prognosis which could not be obtained in the routine methods of clinical examination.

The effect of the common subcutaneous stimulants was not marked.

Normal salt solution, as a rule, raised the blood pressure, the maximum rise being reached with the administration of the first pint. The increased pressure was maintained for a variable period, usually about thirty minutes.

Cases of head injury, while not always typical and uniform in the reaction, as shown by the blood-pressure readings, seem to offer a field in which blood-pressure observations may prove to be of material assistance to the observer.

Summary of the Results of the Investigation. By the Committee on Surgical Research.

The questions which appeared to the committee to be worthy of investigation were as follows:

(1) Does the Riva-Rocci apparatus indicate the true blood pressure with sufficient accuracy for clinical purposes?

(2) In what cases and under what circumstances are the errors due to the apparatus so great as to invalidate its advantageous use?

(3) What is the value of blood-pressure observations —

(*a*) As an indication for or against operation?

(*b*) During the course of an operation?

(*c*) In after-treatment of surgical cases?

Question (1) — Does the Riva-Rocci apparatus

indicate the true blood pressure with sufficient accuracy for clinical purposes? — and *Question* (2) — In what cases and under what circumstances are the errors due to the apparatus so great as to invalidate its advantageous use? — cannot be authoritatively answered by the data in the hands of the committee. In the report from each hospital a certain number of facts appear which have a bearing upon these questions. A special series of observations was also made by Dr. F. T. Murphy with different forms of apparatus, and under normal as well as under pathological conditions. The results of these observations, which were made by Dr. Murphy at the request of the committee, are embodied in this summary. A laboratory test of the Riva-Rocci apparatus to determine the extent of its errors and imperfections was not contemplated by the committee, but rather a test of its practical value at the bedside. So far as the observations of Drs. Faulkner, Stone and Murphy go, the result of this clinical test is as follows:

It is apparent that the blood pressure is not recorded accurately under certain well-defined conditions. Arteriosclerosis and excessive development of fatty subcutaneous tissue and of muscle appear to cause an overestimate of the true blood pressure by the use of the Riva-Rocci narrow band apparatus. Repeated observations on the same normal individual, and with the same technique of application, gave practically constant readings. Variations were found with different observers under the above conditions, but with those who were accustomed to taking the pulse the error was so slight as to be negligible.

The rapid variation of the force of the heart beat in cases of dyspnea caused difficulty in the accurate estimate of the exact pressure necessary to ooliterate the pulse. Maintenance of the pressure in the armlet at a point sufficient to obliterate all but an occasional pulse-wave of more than average force appeared to give the most accurate results under these conditions.

Emotional and psychic causes produced extreme fluctuations in the blood-pressure readings. In children greater variations were found to be produced by these conditions than by grave alterations in the physical condition. This observation, however, does not appear to be due to the apparatus in any way, but merely interferes with accurate deductions being made from a given observation.

Change of posture appears to alter the peripheral blood pressure to a marked degree. Four normal individuals were observed by Dr. Murphy both in the prone position and in extreme Trendelenburg position. The results were as follows:

No.	*Prone.*	*Trendelenburg.*
1	189	155
2	143	145
3	163	150
4	155	180

It will be noticed that the alteration in the blood pressure is not constant either in direction or degree. The pulse in all four cases was lowered four to six beats a minute by the change to the Trendelenburg position.

No difference was apparent between the blood pressure in the two brachials in a case of hemiplegia.

Observations were made by Dr. Murphy upon a number of normal individuals and the majority fell within the limits of 120 to 160 mm. of mercury which was given by Gumprecht [1] as the result of a series of observations on normal individuals. Many apparently normal cases, however, gave readings beyond these limits, and estimates of the blood pressure as low as 100 and as high as 200 mm. were occasionally noted in normal individuals.

The modification of the Riva-Rocci apparatus introduced by von Recklinghausen,[2] in which an armlet of 15 cm. width is used in place of the 5 cm. armlet of the original apparatus, was adopted by Dr. Murphy, and a series of observations was made by him with this form of apparatus, which seemed to give lower and more accurate readings than with the narrow band.

A number of different widths of armlet were then obtained and comparative observations were made in a large number of cases. An armlet of 10 cm. width was found to give readings of practically the same degree as those which were wider and more cumbersome. The metal cuff, outside of the rubber armlet, as recommended by von Recklinghausen, was found to exert far less influence than the width of the armlet in every case.

An article by W. B. Stanton, *University of Pennsylvania Medical Bulletin*, 1903, Vol. xv, gives an excellent description of the comparative merits of broad and narrow armlets with the Riva-Rocci apparatus. Dr. Stanton recommends for ordinary use an armlet 3¼ inches in width, with canvas or leather cuff.

A series of observations made with the 5 cm. and 10 cm. armlets was as follows:

Circumference of Arm.	*Reading with 5 cm. Band.*	*Reading with 10 cm. Band.*	*Circumference of Thigh.*	*Reading with 5 cm. Band.*	*Reading with 10 cm. Band.*
21.5 cm.	125	105	35.5 cm.	205	120
23. ,,	175	165	33. ,,	220	175
19. ,,	123	115	29. ,,	235	115
20. ,,	118	100	33. ,,	235	125
20. ,,	135	115	32.5 ,,	190	115

It is to be noted that the blood-pressure readings are, as a rule, lower with the broad armlet by from 8 to 20 mm. and that the individual variation is diminished. That the influence of the soft parts is, to a certain extent, obviated by the use of the broader armlet may be deduced from a comparison of the pressures obtained in the brachial and in the femoral arteries in this series of observations.

When a manometer has been directly connected with an artery in man, as in the instances related by Albert and by Faivre (Masing [3]), pressures of 100 to 160 mm. have been recorded. The use of the 10 cm. armlet gives results which

[1] Gumprecht: Munchener Med. Woch., No. 40, 1899.
[2] von Recklinghausen: Archiv. f. Exper. Pathol. und Pharmac., Bd. 46, p. 78.
[3] Masing: Deut. Archiv. f. klin. Med., Bd. 74, Hft. 3 and 4.

more closely approach these actual experiments. The broad armlet, moreover, gives more definite compression of the artery, and the point at which pulsation ceases is more readily determined. For a discussion upon the physiology of this matter the reader is referred to papers by von Recklinghausen [4] and by Masing.[5] In actual clinical work these theoretical considerations appear to be justified by the results.

To sum up briefly:

(1) The inaccurate readings obtained in cases of arteriosclerosis and excessive muscular development are partially obviated by the use of a 10 cm. armlet with the Riva-Rocci apparatus.

(2) The presence of dyspnea causes inaccuracy in the blood-pressure determinations with either a broader or narrow band.

(3) Change of posture invalidates the readings obtained with either form of apparatus.

(4) Emotional individuals and children show fluctuations of the blood pressure out of all relation to the actual condition of the patient.

(5) Under other circumstances than those above recorded, the accuracy of the determinations with the Riva-Rocci apparatus appears to be sufficient for clinical purposes.

Question (3) — What is the value of blood-pressure observations (*a*) as an indication for or against operation? It is in this field that the value of the systematic determination of the blood pressure appears to the committee to be of the greatest promise. It is to be noted, however, that with the present knowledge which we have of the conditions which cause changes in the blood pressure, deductions can be made only when the conditions of the individual case are thoroughly understood. In emotional individuals and children, in cases of arteriosclerosis and of excessive muscular development and in patients suffering with dyspnea, the readings of the Riva-Rocci manometer, for reasons above recorded, are inaccurate. In injuries and diseases of the head, blood-pressure readings have promised to be of the greatest significance. The part played by the blood pressure in the symptoms of cerebral compression has been worked out by Cushing.[5] It is generally accepted that increased cerebral pressure causes an elevation of the blood pressure to overcome the anemia of the medullary centers. For this reason, increase of the blood pressure, as determined by the Riva-Rocci instrument, would, it was hoped, provide a definite indication for interference in cerebral injuries and diseases. In injuries of the head, however, the presence of shock to a greater or lesser degree must be considered, and its effects upon the blood pressure in an individual case eliminated before deductions of value can be made. It is owing to this fact especially, so far as the committee is able to judge, that the observations reported on cases of head injury have given so little general satisfaction.

In cases of surgical shock the low blood-pressure observations serve, as a rule, only to confirm a diagnosis already made by the physical examination of the patient. It can be stated that a low blood pressure is to be expected in the presence of surgical shock. The actual estimate of the patient's condition and the prognosis as to life or the ability to withstand surgical interference were, as a rule, more accurately estimated by the other methods of physical examination.

In a few cases the evidence, as obtained from the blood-pressure observations, appeared even to be misleading. In hemorrhage the condition of the patient, as estimated by the pulse, respiration, temperature and general appearance, seemed to be more valuable than the blood-pressure observations. In acute abdominal conditions and in sepsis the number of observations was comparatively few, but no data of importance were obtained.

To sum up the entire matter it may be stated that graphic determination of the blood pressure by means of the Riva-Rocci instrument may be judged as an indication for or against operation only after a consideration of all of the conditions which enter into a determination of the blood pressure in the individual case. It cannot be said that a blood-pressure reading of a given degree is indicative of a given condition, but like the symptom of leucocytosis an estimate of the blood pressure may help to determine for or against operation in an individual case when taken into consideration with all of the other symptoms. The cases in which blood-pressure determinations appear to offer the greatest promise are those in which the element of shock and the element of cerebral compression are present.

Question (3) — (*b*) During the course of an operation? A change in the position of the patient is liable to cause a change in the blood-pressure reading so great as to negative its value. During the early stages of anesthesia by gas or ether, elevation of the blood pressure is to be expected. Recovery from anesthesia may also cause an elevation. The results of salt solution infusion and of subcutaneous stimulation may be determined in some cases by means of the apparatus. As a general rule, however, the condition of the patient, as judged by the ordinary physical signs, gave more satisfactory data on which to base an estimate of his physical condition than the blood-pressure reading taken by itself. The value of blood-pressure observations during the course of an operation was not apparent as a result of this series of observations.

Question (3) — (*c*) In after-treatment of surgical cases? In the after-treatment of surgical cases the number of observations made was comparatively few. The results of stimulation have been recorded above. At a period shortly before death a marked and rapid drop in the blood pressure was repeatedly observed. This drop in the blood pressure occurred with equal regularity in cases of shock, fractures of the base, general peritonitis and sepsis. This " moribund drop " made its appearance at varying intervals before death ensued, but in no case was there any doubt

[4] von Recklinghausen: Op. cit.
[5] Cushing: Kocher's Hirnerschutterung, etc. Nothnagel's Spec. Path. and Ther., 1901, Bd. 9, Theil 3, Abt. 2, p. 186.

from the general physical condition of the patient at this time that death was imminent. When recovery ensued after operations, except for the results of stimulation above recorded, no data of value in the after-treatment of the cases were obtained.

To summarize the results of this series of observations it may be said that the value of the Riva-Rocci apparatus in determining the blood pressure in surgical patients is limited to a comparatively small number of cases. The conditions of cerebral compression and of surgical shock produce the most marked and definite alterations in the blood pressure. When these conditions are present and other confusing causes of alteration in the blood pressure are eliminated, the value of the blood-pressure determinations, as an indication for or against operation, is increased. Under other circumstances the value of these observations is at present not apparent. The adoption of blood-pressure observations in surgical patients does not at present appear to be necessary as a routine measure.[6]

Medical Progress.

REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

(Concluded from No. 9, p. 244.)

THE JUSTIFIABILITY OF PERFORATION OF THE LIVING CHILD.

HOFFMEIER [10] says that this question cannot be considered as entirely settled, even with the great improvement in the results of Cesarean and symphysiotomy operations, but that it has become necessary to reconsider the indications for the operation. Some men are of the opinion that a recognition of the child's right to live gives the obstetrician alone the right to decide by what means the woman shall be delivered, whether by symphysiotomy or by Cesarean section. He speaks of the difficulty of arriving at correct measurements of the pelvis in the living subject, and on the importance of estimating the size and hardness of the fetal skull, and its proportion to the size of the pelvis. In determining the justifiability of perforation of the living child at term, he believes that this cannot be decided by statistics alone, but only by considering the principles which are derived from an experience of individual cases.

In the first place, the external conditions are of importance; in women with marked pelvic contraction in whom the child is still of full vitality, if the patient can be placed in a well-appointed hospital or, generally speaking, under the most favorable hygienic conditions, it is not only the right but the duty of the medical attendant to deliver by Cesarean section in the interests of the child; but in cases where the contraction is somewhat less marked, and where the other conditions are not present, the chances for the mother are much more doubtful, and it is impossible to recommend to her to submit to the increased risk of Cesarean section as compared with perforation of the living child.

But even in the obstetric clinic, cases occasionally occur in which the only proper treatment consists in perforation of the living child, at least for those physicians whose practice it is. In the medium degrees of pelvic contraction, especially in primiparæ, it is best to wait and watch the action of the natural forces. In these cases it is difficult to know how long to wait, and in primiparæ the time for turning is sometimes over while yet delivery by the forceps is very dangerous to mother and child. Here symphysiotomy or Cesarean section entail too great a risk for the mother, and there only remains perforation. Neither the law nor our own conscience will justify us in performing symphysiotomy or Cesarean section in any case against the will or without the consent of the patient. The question is no doubt simplified when during a long, expectant treatment of labor the child dies, but it is clear that when the condition of the mother urgently calls for delivery it is immaterial whether the child dies spontaneously or as a result of perforation.

He concludes that even in the present advanced state of surgical midwifery, perforation of the living child in certain cases is still the most favorable method of delivery, both in private practice and in lying-in hospitals, and that we are not justified in replacing it by symphysiotomy or Cesarean section merely because of ethical and theoretical considerations of the child's right to live. It is, however, to be desired that an exact and correct application of these two operations may reduce the necessity for perforation of the living child to a minimum, at least in lying-in hospitals.

ECLAMPSIA.

Dr. Lapthorn Smith, [11] in reply to the question as to what is the best treatment of eclampsia, says one that will in the quickest possible manner and with the least possible danger put an end to the fearful vasomotor spasm and allow the blood to rush into the brain and kidneys so that the woman may regain consciousness and so that her kidneys may at once begin to eliminate the toxin which causes the spasm.

[6] The experimental and clinical research entitled "Blood Pressure in Surgery," by George W. Crile (published by Lippincott, Philadelphia and London, 1903), has come into the hands of the committee only after the completion of this report. Dr. Crile has made many observations upon the blood pressure in surgical cases, and his reports are of great interest. It is to be noted that Dr. Crile found somewhat the same conflicting elements in the blood-pressure observations in individual cases which have been noted in this series of reports. In cases of head injury or operation, Dr. Crile found the element of shock to modify the expected elevation when intra-cranial pressure was increased.

The conclusions drawn by Dr. Crile are as follows: "During important operations and in the after-care of certain cases, blood-pressure determinations were frequently of vital importance. . . . The blood pressure of individuals varies within a wide range; for a number of causes blood pressure in the same individual varies greatly. It is particularly difficult to eliminate the psychical factor. It is frequently difficult to interpret the blood-pressure readings when their indications are most needed. The methods of determining the pressure thus far devised are only relatively accurate. In surgical practice blood-pressure determinations have added a new resource of a fair amount of practical value. The observations during surgical operations correspond very closely with those previously published as observed in experiments on animals."

[10] Journ. of Obstet. & Gyn. of the Brit. Emp., Vol. iii, No. 5, 1903. Zeit. fur Geburts u. Gyn., Bd. 48, H. 2.

[11] Annals of Gyn. and Ped., January, 1904, p. 18.

He administers first a large dose of morphine, and follows it shortly by tincture of veratrum viride hypodermically. He says this method has been used in over forty cases without a death in the largest lying-in hospital in Canada, and since its administration has been instituted no death from eclampsia has occurred in the institution. He first administers morphine subcutaneously, a half or three-quarters of a grain, followed in five minutes by a hypodermic of ten minims of tincture of veratrum viride, which is repeated every ten minutes until the convulsions stop or the pulse comes down to forty. Then he gives a quart of salt solution by enema, which is quickly absorbed by the rectum, and as the spasm in the arterioles of the kidneys relaxes, the water rushes into them, and in half an hour there will be a copious secretion of urine. He says no chloroform, no chloral and no accouchement forcé are needed, but the woman falls into a quiet slumber, and later there is a normal labor and probably a dead fetus. He says there is some fright when the pulse comes down to forty, but there is nothing to fear.

MANAGEMENT OF PREGNANCY COMPLICATED WITH UTERINE FIBROIDS.

Routh [12] says that danger arises from cases being improperly treated, or not treated at all, but when complications are treated efficiently by modern surgical and antiseptic methods, the mortality is enormously reduced, the chief dangers being:

(1) *During pregnancy*, — rapid enlargement of the fibroids, degeneration of fibroids, abortion with hemorrhage and sepsis.

(2) *During parturition*, — fetal malpresentations, obstruction, hemorrhage.

(3) *During the puerperium*, — degeneration or extrusion of a submucous fibroid, sepsis and secondary infection of the fibroids.

The effect of pregnancy upon fibroids is discussed under the following:

(*a*) Growth of fibroids during pregnancy. He is not at all certain that fibroids as a rule do increase much in size in pregnancy.

(*b*) Atrophy of fibroids during involution of uterus. They may atrophy and entirely disappear during involution of the uterus.

(*c*) Degeneration and extrusion of submucous fibroids after labor. Occasionally after labor a submucous fibroid will degenerate and be extruded without harm. Usually, however, necrosis of the fibroid occurs during the somewhat prolonged period of extrusion, and sapremia or septicemia may result.

(*d*) Secondary infection of fibroids during the puerperium. Infection of fibroids during the puerperium may occur, and fatal peritonitis may result, as the softening during pregnancy renders them very liable to infection.

The effect of fibroids upon a coexisting pregnancy are discussed under the following heads:

(*a*) Do fibroids cause sterility? It is generally believed they do, but he says it seems probable that fibroids are not by any means a frequent cause of sterility, but that it is possibly more true that sterility is a cause of fibroids.

(*b*) Probably fibroids do not predispose to abortion or premature labor, as statistics seem to prove that the proportion of abortions with fibroids is very little greater than the normal average.

(*c*) Fibroids undoubtedly cause fetal malpositions.

(*d*) Fibroids lead to uterine inertia and delayed labor. Also post-partum hemorrhage and adherent placenta are more frequent than in normal labor.

(*e*) Existing fibroids may cause obstruction during labor, but spontaneous elevation of the fibroid out of the pelvis is more likely to take place late in pregnancy or even in labor. Cervical and intraligamentous fibroids are incapable of being elevated.

(*f*) Involution in the puerperium is retarded but not impaired. The lochia is increased and persists longer.

In treatment before fetal viability, attempts should be made to elevate the fibroid by digital or hydrostatic pressure in the Sims or knee-chest posture. Forcible reposition is to be avoided. Induction of abortion has been abandoned. Myomectomy is now the ideal indication for treatment when pressure symptoms develop before fetal viability, but it can only be hopefully undertaken in a small number of cases. Hysterectomy is the procedure where there is real danger in allowing the patient to go to term, or where pressure symptoms are serious and the fibroids are multiple and too deeply imbedded, also, for intractable hemorrhage.

In treatment after fetal viability the indication is to leave things alone so long as the mother's life is not endangered. Reposition may be tried. No attempt should be made to drag a child, living or mutilated, past an obstructing fibroid of any size by forceps or by version. If the patient is in labor, and the obstructing fibroid shows no tendency to rise, or if it is fixed in the pelvis, an operation is inevitable, and except in the case of a cervical fibroid abdominal section is necessary, for symphysiotomy is condemned by all in these cases. Cervical fibroids cannot be elevated, but in some cases they may be enucleated from below.

In treatment after labor hysterectomy may be required in cases where labor has already taken place in fibroid uteri, for post-partum hemorrhage or uterine sepsis with infected fibroids with retained placenta.

TREATMENT IN MEDIUM DEGREES OF PELVIC DEFORMITY.

Kerr [13] says that while it is not difficult to recognize a deformity of the pelvis, it is a matter of very great difficulty to appreciate the exact degree and nature of the malformation, as the means for measuring and estimating the pelvic cavity are so defective. A careful measure-

[12] Brit. Med. Journ., Oct. 3, 1903, p. 798.

[13] Amer. Journ. Obstet., July, 1903.

ment of the pelvis both by hand and by pelvimeter should be made, and an estimate of the size of the child's head attempted, but in certain cases, however, a conclusion as regards treatment cannot be come to until labor has progressed, especially in primiparæ. With a conjugate vera of less than three and one-half inches, he has never seen a woman deliver herself of a normal full-term live child. The lowest limit for forceps he considers as three and one-quarter inches, and forceps should not be applied if the fetal head, after having had time to engage and mold is still movable at the brim. His results with regard to fetal mortality are very much worse with version than with forceps, and his conclusion as regards version is that it is a treatment more dangerous to the mother and with an infinitely higher fetal mortality than forceps.

BIRTH PARALYSES.

Kennedy [14] reports three cases in which he practiced suture of the brachial plexus in birth paralyses of the upper extremity. This procedure is based on the principle that such cases should be dealt with as similar injuries are usually treated. If there is no spontaneous improvement, the seat of injury should be exposed and the condition dealt with on general principles. In one of the author's cases complete restoration of function ensued; in the other two voluntary motion was not restored.

ABNORMAL SITE OF THE AFTER-BIRTH.

Bayer [15] calls attention anew to the fact that the cervix does not behave the same in all pregnancies. In some it develops by unfolding irregularly, and the physiologic stricture becomes spastic in labor accompanied by spasmodic contractions. The after-birth in placenta previa is inserted in the lower pole of the uterus, but not in a correctly regular segment, and hence it develops abnormally. He says a woman who has had considerable hemorrhage during the pregnancy but who arrives at term without much loss of strength stands a better chance of recovery (from placenta previa) with a living child than one whose labor commences at term without any hemorrhage during the pregnancy. The same conditions prevail when the placenta is located in the tubal angle. The uterus forms a "tubal segment" as the walls of the tube expand under the placenta. In case of placenta previa it becomes more or less detached and hemorrhages occur, simulating the phenomena of premature detachment of a normally located placenta. The various conditions are shown in cuts. With a placenta located in the tubal angle the uterus becomes saddle-shaped. No special treatment is required for it, except that the possibility of a pathologic process must be borne in mind.

INDICATIONS FOR FORCEPS OPERATION.

Fehling [16] thinks that injury of the soft parts would not occur if students were trained in forceps operations and repair of injuries by careful suture under the eye of the professor. He adds that no "practicant" is allowed to leave his clinic without having sutured a perineum once or several times. He thinks that there is nothing to prove that the application of forceps leads to hemorrhage from atony. Hemorrhage from lacerations can be easily controlled. Slight lacerations of the cervix occur in nearly every normal birth, and Emmet's operation is usually superfluous. He states that in 815 forceps operations he has held the forceps himself in only ten. He regards feeble contractions as an indication for their use and advocates resorting to them when all the conditions are favorable and the deilvery stage lasts more than three hours.

HYPEREMESIS GRAVIDARUM.

The author [17] reports a case of hyperemesis which became grave during the third month of pregnancy. The induction of abortion was contemplated, but the employment of copious rectal injections of normal saline solution was followed by rapid improvement, and after fourteen days of treatment by this method the patient could retain all kinds of food. The cessation of injections was followed by a return of vomiting, which again disappeared when the treatment was recommenced. A second case is also reported. The writer orders each morning rectal lavage for cleansing purposes, followed by the injection every two hours of about half a liter of warm saline solution, which is retained and absorbed. Four less severe cases were treated in the same way. The symptoms occurred between the second and fourth months of gestation. The pelvic organs were normal in each instance, and there were no manifestations of hysteria. In each case the rectal injections were followed by the cessation of vomiting.

[14] R. Kennedy: Brit. Med. Journ., Feb. 7, 1903.
[15] Journ. Amer. Med. Assoc., Dec. 5, 1903, p. 1441.
[16] Beit. z. Geb. und Gyn. (Hegar's), Leipsic. Journ. Amer. Med. Assoc., Dec. 5, 1903, p. 1441.

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

STATED meeting, Dec. 14, 1903. The President, ANDREW H. SMITH, M.D., in the chair.

DR. SAMUEL G. GANT read a paper on

WATER ANESTHESIA IN OPERATIONS ABOUT THE RECTUM, ANUS AND BUTTOCKS.

A local anesthetic which would prove effective in operations about the ano-rectal region, and at the same time be devoid of toxic properties, would, he said, enable the surgeon to perform most of these operations in his office, and he had accordingly been experimenting for many years in order to find one possessing these advantages. It was thought for a time that Beta-eucaine met these requirements, but even this preparation had not proved entirely satisfactory. His more recent experience, in more than 150 cases of rectal affections radically operated upon,

[17] Behm: Archiv. fur Gyn., 1903, Bd. lxix, H. 2, p. 410 Journ. of Obstet. & Gyn. Brit. Emp., October, 1903, p. 393.

had shown that sterile water, properly injected, is a reliable local anesthetic, — and he was convinced that this is the most desirable agent for these operations, for the reason that it produces an adequate degree of anesthesia, while in no instance has its employment been accompanied or followed by any of the annoying and dangerous complications frequently encountered under the use of cocaine or similar drugs.

Dr. Gant was induced to try distention of the tissues with water to produce local anesthesia in consequence of the following observations: (1) Cocaine, eucaine and other similar solutions were practically inert when distention was not obtained, because of the escape of the fluid through an ulcer, fissure or sinus. (2) Very weak solutions of the same drugs were apparently as effective as strong solutions in all cases where complete distention of the tissues was possible. While experiments with sterile water anesthesia were begun in September, 1901, it is only recently that the technique has been so improved that he has been enabled to use it in a very large majority of his operations, to the exclusion of general and medicinal local anesthetics. Among the cases in which he has successfully employed it are included radical operations for protruding and non-protruding internal hemorrhoids, cutaneous and thrombotic external hemorrhoids, polypi, prolapsus ani, fistulæ of various kinds and marginal and follicular abscesses; excision of perineal cysts, sacral dermoids and lipomata of the buttocks; removal of foreign bodies beneath the skin and mucosa; division of the sphincter ani in cases of constipation where divulsion proved ineffective; fixation of an elongated sigmoid to the anterior abdominal wall; colostomy and exploratory laparotomy.

Technique. — The only requirements for the practice of the procedure are sterile water and a hypodermic syringe fitted with a long, fine, sharp-pointed needle, which, with the syringe itself, should be carefully sterilized. The temperature of the water is unimportant, but warm water is preferable, as causing the least discomfort. Sterile saline solution does not appear to possess any advantage over simple water. The manner of injecting the water varies according to the nature of the operation to be performed. When an incision through the skin is required, a fold of the integument at one extremity of the line of incision is compressed for a few seconds between the thumb and forefinger; this diminishes and often prevents the momentary pain which may be caused by the first injection. The needle is then inserted between the layers of the skin and a few drops of water are slowly injected; this should produce a small, localized distention not unlike a blister, and immediately on its appearance cutaneous anesthesia should occur at this point. Next, the needle is slowly introduced further and further along the line of the cut to be made, care being taken not to go entirely through the skin, and the water is gradually injected as before. When the syringe has been emptied, it is refilled and the needle re-introduced within the anesthetized area, the injections being repeated, as before, until the distention extends the entire length of the line of incision. The needle is then plunged through this distended line and subcutaneous injections are rapidly made until a firm, whitish, ridge-like swelling, about as wide and thick as the index finger, is produced. These deep injections may cause a temporary sense of discomfort, owing to the rapid distention of the subcutaneous tissues. If the procedure has been properly carried out, the skin and underlying tissues can now be incised without pain in almost every instance.

Dr. Gant then gave some details of the methods he employed in various operations, and stated that he did not advocate water anesthetization for deep ischio-rectal, peri-rectal or pelvi-rectal abscesses where extensive cutting and curettage are essential. For external thrombotic hemorrhoids it is requisite to make the injection of sterile water only between the layers of the skin overlying the clot to be removed, while in excising external cutaneous hemorrhoids both the skin and tumors should be distended tightly in order to obtain effective anesthesia. Large internal venous or capillary hemorrhoids can be completely anesthetized within thirty seconds by injecting directly into the center of each tumor sufficient water to distend it tightly and cause it to turn white. Any affection which requires operative procedure to increase the lumen of the anal outlet, or which necessitates incision of the sphincter muscle, may be operated upon under water anesthesia. After the skin and mucous structures up to the margin of the anus have been distended, injections are made into the mucosa, the submucosa, the external sphincter and, if necessary, the internal sphincter muscle. They should be made slowly, as rapid distention of this sensitive region may give rise to considerable discomfort.

Advantages. — Among the advantages of water anesthesia are the following: (1) In the majority of rectal operations there is no necessity of requiring the patient to submit to the annoyance and expense of entering a hospital and undergoing general anesthesia. (2) The rapid distention of the tissues to be incised or removed enables the operator to work quickly, and as the patient is not confined to bed during the after-treatment, but can come to the office to have the dressings made, it economizes the surgeon's time and labor. (3) No annoying or dangerous complications or sequelæ have been observed. (4) Experience has shown that the pain and bleeding following this method are less than when medicinal local anesthetics are used. (5) It eliminates the danger to life from the heart, lung and kidney complications which may result from the use of ether or chloroform, and it avoids the increased pain and hemorrhage due to straining and vomiting after general anesthesia. (6) The only requirements are a hypodermic syringe, a suitable needle and boiled water. (7) The radical treatment of hemorrhoids can be so easily carried out in the physician's office, and with so little danger and inconvenience to the patient, that it should relegate to oblivion the much-vaunted injection treatment, which is always dangerous and uncertain.

Modus operandi. — As the anesthetization of the part occurs almost instantly upon complete distention of the tissues, it would seem probable that the anesthesia is produced by the pressure upon the nerves and their terminations caused by the distention. If the pressure is too quickly induced, however, by too rapidly injecting the water, it may cause considerable temporary discomfort, amounting to pain in extremely sensitive persons.

Limitations. — This method of anesthetization is not practicable for extensive operations, such as are required for excision of the coccyx, the removal of large tumors by excision, or resection of the bowel, or for the relief of complete prolapsus recti, complex horseshoe, recto-vesical, recto-urethral and recto-vaginal fistulæ, very extensive abscesses, or strictures, congenital malformations or other affections located in the upper rectum; neither is it applicable for opening the abdomen in cases where there is a thick layer of fat and the tissues are so loose and flabby that a proper degree of distention cannot be secured.

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THE MASSACHUSETTS SCHOOL FOR FEEBLE-MINDED.

THE fifty-sixth annual report of this institution is before us, a report which we always read with peculiar interest. The work of the institution is done so quietly and unostentatiously that the public at large is little aware of the difficulties which must be met and the admirable results which are accomplished in the care and treatment of this difficult class of patients.

At the time of the issue of the report there were 668 feeble-minded persons at the school at Waltham and 132 at the newly instituted farm colony at Templeton, making a total of 800. Of this number 47 are private pupils supported in whole or in part by parents or guardians. The increasing demands made upon the institution are necessitating further accommodations. To this end, under an appropriation granted in 1902, a new dormitory is in process of construction for the accommodation of the older girls. The health of the inmates has in general been good, and the mortality compares most favorably with the death-rate in the community at large. It can no longer be said that the life of the feeble-minded person is short. Possibly this lengthening of the life of these unfortunate persons may be regarded as not wholly a blessing, nevertheless it serves as an excellent demonstration of the faithful care which this most helpless class is receiving.

The school department, about which the other branches of the institution center, is an outgrowth, as is now generally known, of the first organized attempt in this country to educate the idiot as far as may be. This conception and its consummation was due to the persistence of Dr. Howe. Naturally his ideas have been modified, particularly on the religious side, but the fundamental principles which he inaugurated are still active and fruitful. The colony at Templeton, to which we have before alluded editorially, has proved a complete success. It accommodates feeble-minded boys and men and provides for them active and at the same time useful employment.

The superintendent, Dr. W. E. Fernald, calls attention in his report to many facts of interest. It is encouraging, in the first place, to observe that of 97 admissions 51 were young, teachable pupils capable of much improvement. There were 269 applications for admission during the year, many of whom have been promised accommodation as soon as the new dormitories are completed. Attention is also called to the fact that one of the functions of a school for the feeble-minded is to afford clinical instruction for students of medicine and others interested in the psychological problems which the idiot class presents.

The hospitality of the management has been appreciated by the medical schools of the city as well as by classes from Wellesley, Harvard College and the state normal schools, whose purpose is rather psychological and pedagogical than medical. We have long felt that most valuable opportunities for instruction near at hand are too much neglected, both by teachers and students. The amount of information which may be obtained by several visits to the Waverley School, or to allied institutions, is very much greater than can be had by ordinary methods of instruction. Not only are many patients of a similar sort gathered together in one place, but the mental impression which such visits make upon the student's mind is often incalculably great. If the institutions are willing to offer this hospitality to students, it should be accepted far more completely than is at present the case. The Waverley School has subserved a further and wide-reaching function in providing information on methods of teaching this type of children, and in serving as a source of information for physicians or parents who seek advice as to the diagnosis and home treatment of feeble-minded or otherwise abnormal children.

Each year sees a widening of the scope of this admirable institution. It is not only caring for an outcast portion of the community, but is actually making the persons who comprise it use-

ful in varying degrees to themselves and to the state. Such a work deserves the warmest commendation.

THE ISLANDS OF LANGERHANS.

The recent work of Opie on the Islands of Langerhans has attracted much attention to these previously little understood structures. Opie showed that certain cases of pancreatic diabetes have a definite relation to lesions of the islands. This observation has been confirmed by other investigators and is based upon the assumption that these structures have a physiological function distinct from that of the rest of the pancreas, and are concerned particularly with carbohydrate metabolism, hence their importance in relation to diabetes. It has been shown by Ssobolew and Schulze that after ligation of the pancreatic duct in animals the glandular portion of the pancreas atrophies and is replaced by fibrous tissue, but that the islands are unchanged and no sugar is excreted. Under similar conditions produced by disease in man Opie has observed the same result.

Dr. R. M. Pearce, in a recent number of the *Albany Medical Annals*, takes up again the study of the Islands of Langerhans in relation to congenital syphilitic pancreatitis. Dr. Pearce finds in the study of the pancreas in congenital syphilis that the same picture of chronic inflammation is produced described by Opie as the result of obstruction of the duct with similar persistence of the islands. This persistence of the islands has not been generally recognized in young children, owing to the rarity of post-mortem examinations, and also that attention has not been hitherto particularly directed to these structures. Dr. Pearce has filled a gap in our knowledge by studying the development of the islands in human embryos and has by this study brought out certain interesting considerations with relation to the syphilitic organ.

The first study of syphilitic pancreatitis was made in 1875 by Birch-Hirschfeld. Since then a considerable number of cases has been reported. The lesion is characterized by an increase of connective tissue compressing and causing atrophy of the glandular elements. Schlesinger regards the increase of connective tissue as of perivascular origin. Dr. Pearce, through the courtesy of various physicians, has been able to examine a number of cases of pancreatitis of the syphilitic form in infants. He finds as a most striking feature of the alterations a persistence of the Islands of Langerhans in spite of a general destruction of the glandular acini. The islands apparently show no evidence of degeneration or atrophy or an ingrowth of connective tissue, from which it is assumed that they are anatomically independent. Certain histological evidence goes to show that in their early development they are in connection with the acini, and that their development is interrupted in the case of syphilis by an ingrowth of connective tissue leading to the atrophy of the glandular tissue and sparing the more resistant islands. Dr. Pearce, in his embryological work, has substantiated this point of view, before reached by Opie.

From a comparison of the pancreas under normal conditions and as affected by the presence of syphilis, it appears that syphilitic infections occur in the third or fourth month while the islands are still connected with gland tubules. In general the microscopic picture of the normal pancreas at the end of the third month is similar to that of the syphilitic organ at the end of the sixth or seventh month, particularly with regard to the stage of development of the islands. The ultimate factor in the resistance of the islands to disease is supposed to be their abundant blood supply. Dr. Pearce's careful study, although, as he says, adding nothing essentially new to our conception of the structures under consideration, nevertheless is a further link in the chain of evidence which has been accumulating during the past few years, and will tend to establish upon a still firmer basis the significance of the hitherto little understood Islands of Langerhans.

MEDICAL NOTES.

A Bequest to Consumptives' Home. — By the will of the late Miss Sarah Schermerhorn the Denver, Col., Home for Consumptives receives $50,000.

Pneumonia and Consumption in Chicago. — For the week ending March 12, the deaths from pneumonia in Chicago had decreased and those from consumption had increased quite sharply.

German Congress of Internal Medicine. — The twenty-first annual German Congress of Internal Medicine will be held at Leipsic, April 18 to 21, under the presidency of Dr. Merkel of Nuremberg. The main topic of discussion will be arteriosclerosis.

Address on Dr. Joseph O'Dwyer. — W. P. Northrup, M.D., addressed the J. C. Wilson Medical Society of Philadelphia on Feb. 19. Subject:

"Joseph O'Dwyer, M.D. The method of his work on Intubation; The measure of his success; The interest of both to young practitioners."

CENTENARIANS. — Mrs. Sarah Coover, said to have been born in 1798, died March 1, at Mechanicsburg, Pa. Her extreme age, nearly one hundred and six years, is said to be well attested.

Mrs. Sarah B. Chapman has also recently died at the reputed age of one hundred and one years in Bethel, Vt.

THE BUTLER TYPHOID EPIDEMIC. — The emergency hospital for the purpose of treating typhoid patients at Butler, Pa., has been closed. In upwards of 1,300 cases 115 deaths occurred. It is reported also that nearly 10% of the number of nurses employed were infected during the course of their service.

MEDICAL PRACTICE BY FOREIGNERS IN SPAIN. — The question of medical practice in Spain by holders of foreign diplomas has recently formed the subject of animated debates in the Spanish senate. The discussion has so far led to no definite conclusion, but from the reports that have been published it may be gathered that a foreign doctor can at present practice his profession in Spain without the necessity of submitting to any further examination.

FRENCH CONGRESS OF CLIMATOTHERAPY AND HYGIENE OF TOWNS. — As previously announced, the first session of this Congress of Climatotherapy and Hygiene of Towns will be held at Nice the 4th to the 9th of April, under the presidency of Professor Chantemesse of Paris. It is officially announced that members of the congress will be allowed large reductions over many of the railway lines of France and Corsica, and also on certain of the steamship lines. Italy has also granted reductions in railway fares, and many hotels have adopted similar reduced prices. The members of the congress will officially visit Monaco, Mentone, Cannes and Grasse. The Prince of Monaco will hold a reception at the palace, and there will be a gala performance at the casino. Other excursions and festivities will likewise take place. In order to take part in the congress it will be necessary to remit to the treasurer, Dr. Bonnal, 19, Boulevard Victor-Hugo, Nice, the amount of twenty francs, accompanied by the subscriber's visiting card, titles, etc.

Further information will be supplied by Dr. Hérard de Bessé, General Secretary, Beaulieu s. m. (Alp.-Marit.).

DEATH OF DR. PETER DETTWEILER. — Dr. Peter Dettweiler died Jan. 13, 1904, after an active life devoted largely to the advancement of the treatment of tuberculosis. He was born in Hesse, Aug. 4, 1837, and took his medical degree in 1863. While serving as surgeon in the Franco-Prussian war, he contracted tuberculosis, underwent sanatorium treatment, recovered his health and became assistant of Dr. Brehmer at Goerbersdorf, where he had formerly been a patient. After a service of six years at this institution, he founded the sanatorium at Falkenstein, which has since attained a very wide reputation as a pioneer in sanatorium treatment. Dr. Dettweiler was the first to advocate rest in the open air, to establish the first sanatorium for consumptive poor and in general to supply the stimulus which has since resulted in the development of this line of treatment.

He has written several works on the general subject of the treatment of tuberculosis, and has long been looked upon as the leader in the rational treatment of the disease. He was personally attractive, had an unusual influence over his patients and was always cordial in his treatment of visitors to his sanatorium.

ADIRONDACK COTTAGE SANITARIUM. — Among many statements of interest in the nineteenth annual report of the Adirondack Cottage Sanitarium, the following are worthy of quotation:

"Of 1,500 cases which have been discharged from two to seventeen years ago, 334 could not be traced, leaving 1,166 which have been traced. Of these, 46.7% are still living — 31% are known to be well at present, in 6.5% the disease is still arrested, 4% have relapsed, 5.2% are chronic invalids — and 53.3% are dead. Thus we learn that 31% of all cases discharged from two to seventeen years ago have remained well."

. . . . .

"The work done by the Sanitarium during the past year may be summed up briefly as follows: Two hundred and ninety-eight patients have been treated. To 257 of these the institution has furnished the best possible means of restoration to health at a nominal cost, and to 41 entirely free of cost to them.

"As a further means of increasing the beneficent work of this institution a plan has been devised, deserving of general sympathy and cooperation, whereby persons partially recovered, who yet are not able to do the work of persons perfectly well, may still be provided with remunerative employment in proportion to their

strength and capacity. To meet this need a co-operative employment bureau has been established, and persons interested are requested to indicate to this bureau possible positions for tuberculous persons capable of working, but who are in no way a menace to others."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon March 9, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 33, typhoid fever 12, measles 186, smallpox 0.

BEQUESTS TO HOSPITALS. — Through the will of the late Mr. George B. Upham of Milton, Mass., the Massachusetts General Hospital receives $10,000.

Mr. Nathaniel A. Moody, who recently died at his home in Waltham, Mass., makes the Waltham Hospital the sole ultimate beneficiary of his estate, valued at about $20,000.

SHARON SANATORIUM. — On recommendation of the directors, it was voted at the annual business meeting to change the name of the Sharon Sanitarium to that of Sharon Sanatorium.

The president, Prof. William T. Sedgwick, presided, and the following-named directors and officials were elected: President, William T. Sedgwick; treasurer, Nathaniel H. Stone; secretary, Mrs. Charles A. Porter; directors, Augustus Hemenway, Rev. Edmund F. Merriam, Arthur Dehon Hill, Mrs. Henry P. King, Mrs. W. T. Sedgwick, Vincent Y. Bowditch, M.D., Robert W. Lovett, M.D., L. Vernon Briggs, M.D.; medical director, Vincent Y. Bowditch, M.D.; consulting physician, Frederick I. Knight, M.D.; resident physician, Walter A. Griffin, M.D.; matron and superintendent, Miss Alice R. Hodges.

It was stated at the meeting that the percentage of patients — women of limited means with early symptoms of consumption — who have regained their health since entering the institution from the opening in February, 1891, and up to two years ago has been large. Generous public support is solicited to supply the large yearly deficit.

NEW YORK.

GIFT OF A PARK TO UTICA. — By the will of William G. Helligan, late president of the Herkimer County Bank, the city of Utica, N. Y., comes into possession of a beautiful park of forty-five acres and a fund of $12,000 to maintain the property.

RESIGNATION OF DR. PETERSON. — Dr. Frederick Peterson of New York, President of the State Commission in Lunacy, has presented to Governor Odell his resignation as a member of that body. The reason assigned is that the duties of the position interfere to too great an extent with his private professional work.

APPOINTMENTS IN MEDICAL DEPARTMENT, COLUMBIA UNIVERSITY. — At a meeting of the trustees of Columbia University held March 7, the following appointments in the medical department were announced: Dr. Edwin B. Cragin, Professor of Obstetrics, to fill the chair of Gynecology (made vacant by the resignation of Dr. George M. Tuttle) until further action by the trustees; Dr. Henry McMahon Painter, Clinical Professor of Obstetrics; Dr. Gorham Bacon, Clinical Professor of Otology, vice Dr. Albert H. Buck, resigned; Dr. William K. Simpson, Clinical Professor of Laryngology, vice Dr. George M. Lefferts, resigned. The trustees have established eight scholarships in the College of Physicians and Surgeons, each of the money value of $250 annually. Four of them will be known as William N. Vanderbilt scholarships, in memory of Mr. Vanderbilt's gifts to the school, and the remaining four will be faculty scholarships.

CROWDED HOSPITALS. — All the hospitals in the city are crowded this winter to an almost unprecedented extent, principally owing to the prevalence of pneumonia and other chest diseases. Dr. John W. Brannan, President of the Board of Trustees of Bellevue and Allied Hospitals, has made the following statement in reference to the existing conditions: "This overwhelming demand upon the hospitals is very largely the result of the extremely severe weather we have been having. Persons physically strong and able-bodied, who scarcely knew what it meant to be sick a day since they were born, have yielded to the trying weather of the past few weeks. There is, however, another cause which has had a good deal to do with the situation. The poorer people find times so hard that they are unable to get work and to provide for their families as they used to do. Consequently, when any member of the household becomes ill, he is at once sent to a hospital, as a matter of necessity." In order to relieve the present congestion, Dr. Brannan announced that a number of tents, similar to those at the Metropolitan Hospital tuberculosis infirmary, would be put up without delay. These tents, so-called, will be partly of wood and partly

of canvas, and will be heated either by stoves or steam pipes. "The only permanent relief for Bellevue, however," he said, "will come when it gets its new building, but, of course, that will not be for some time yet. We are enlarging the other three hospitals, and this work will be pushed with all possible dispatch."

Miscellany.

A CONTRAST.

A CORRESPONDENT sends us the following extracts from the second volume of Viscount Wolseley's *Story of a Soldier's Life* published recently. They deserve to be put side by side:

No one ever fell sick [on the Red River expedition]. I was asked to have our senior doctor promoted when the expedition came to an end, but refused, because he had had nothing to do, there never having been any sick for him to cure (p. 208).	So ended the Red River expedition. . . . As far as fighting was concerned it was a bloodless campaign, and although great physical difficulties were encountered and manfully overcome by the troops employed, not a life had been lost (p. 223).

Lord Wolseley does not go on to say that the honors which came to him as the leader of this bloodless expedition were undeserved, yet the analogy is perfect. If the senior doctor had nothing to do because nobody was sick, the senior fighter can have had nothing to do because nobody fought. How long will it be before military commandants and reconstitution committees begin to take a rational view of hygiene as an integral part of military administration, without which the most beautiful scheme with family trees and new offices and new titles for old offices must come to the ground when put to the actual test of war? — *British Medical Journal.*

REPORT OF THE BUTLER, R. I., HOSPITAL.

THE annual report of the Butler Hospital shows that there were in the hospital Jan. 1, 175 patients, of whom 90 were women and 85 men. During the year 56 women and 40 men were admitted, making the entire number of patients under treatment 271. Dr. Blumer, the superintendent, makes a vigorous plea for a more rational point of view regarding the popular attitude toward mental disorders, and draws attention to the fact that the Butler hospital is more and more fulfilling the function of an institution for the care of persons not to be regarded as insane.

Dr. Blumer says in part:

It cannot be too often protested that there is no stigma of insanity. Indeed, in these New England communities of ours, where brains are more apt to be highly organized than in less favored parts of the country, it may even be a mark of distinction to possess a mind of sufficient delicacy to invite damage under the stresses of life, while the stolid and exceedingly commonplace Philistine who calls his brother Raca conserves unscathed his modicum of gray matter and is serenely unmindful of the scriptural consequences of his somewhat absurd detraction. Year by year and little by little the patient champion of the claims of the insane to respectful consideration as invalids makes headway against ignorant or loose conceptions of the kind of which complaint is here made. Slowly the idea that insanity is a symptom of disease, no less than toothache, and no more disgraceful, is gaining ground. People are becoming familiar with forms of mental derangement other than those which have extreme outward manifestations and know that nowadays the patient goes to a hospital because he is sick and in need of treatment, and not because his conduct has made him a menace to himself or the community. A favored few now apprehend that there is no essential difference between nervous and mental diseases, the latter merely showing a greater prominence of the mental symptoms. This growing perception of essential unity marks a welcome advance, because the neurosis was wont always to bear herself with a strut, and even looked down upon her bigger sister, the psychosis, as of a different and lower order.

THE VALUE OF EXERCISE.

JAY W. SEAVER, M.D., of Yale University, President of the Chautauqua School of Physical Education and of the American Institute of Physical Culture, spoke informally before the physicians of Boston and vicinity, at the rooms of the institute, 29 Beacon Street, Boston, Saturday afternoon, March 12.

Dr. Seaver has the unique distinction of having personally made a physical examination of over 30,000 persons, and he has in his possession complete records of their measurements. He referred to exercise as a necessity of life, just the same as sunlight, fresh air and food, because no healthy animal grows into vigorous maturity without performing many movements that are in themselves useless and unnecessary so far as accomplishing work is concerned, but the movements are taken from an innate restlessness that makes the young child play instead of rest. All play is founded on physical activity, and this activity becomes recreative, restful and helpful, according to the needs of the body. Again, exercise is a therapeutic means that cannot be ignored. For over a hundred years attention has been given to what has been called medical gymnastics in the treatment of various forms of disease, and the method has gradually grown in the estimation of medical men until it is the chief agent used in treating many cases of deformity, malnutrition and nervous conditions. Again, exercise may be looked upon from the esthetic standpoint, as a means of producing a more symmetrical and artistic physical development, but more especially in producing a graceful carriage and a control of the body. Emphasis, however, was laid upon exercise as a developmental and therapeutic measure, a means of securing such strength and activity as is characteristic of health and ability to do the work of life. This is accomplished largely through the influence that exercise has upon the nervous system, in giving it a normal outlet for the force that is generated in the brain; as it were, putting an implement in the hands of the brain for the accomplishing of its purpose; and, in the second place, it improves the circulation, so that each part of the body has its due amount of nutrition, and its waste material is swept away, so that the tissues are not poisoned by the products of ordinary wear and tear. The problem of nutrition to-day is not so largely a matter of abundance of food as it is an economic use of food by the system, and this economy is carried out by adequate circulation that eliminates waste and overcomes local stagnation. Modern life has its decided tendency to limit the physical activities, and many of the ills that require the attention of physicians are due to the physical restraints that encumber life. The modern business man does not get his

morning walk to his place of business; his communications with other business men are carried on over the telephone, and the brain in general attends to a multitude of details that in previous generations would have been mixed in with a large number of physical activities that would have reacted favorably upon his general nutrition. Now, he must secure exercise of his muscles in some artificial way. He cannot even spend the time to attend a gymnasium, and it becomes necessary for him to have a routine of movements prescribed by some one who has made a study of physical conditions and the exercises that will be most helpful for each particular case, in exactly the same way that a physician selects from a large number of medicines the ones that his judgment decides will be beneficial to the patient, or he prescribes a diet suitable for his physical needs.

To acquire a ripened judgment as to suitable exercises several things are necessary:

First, there must be a thorough training in the knowledge of the anatomy and physiology of the human body.

Second, there must be a practical knowledge of exercise and its various reactions upon the body.

Third, there must be a knowledge of the pathological conditions involved in any abnormal state, and an appreciation of how these abnormal conditions may be modified by the various forms of exercise.

Fourth, there must be experience in the prescription of exercise, so that a careful estimate may be made of the personal idiosyncracy of each pupil, and such exercises given as shall produce the desired result. The body must be made not only strong muscularly, but it must be trained to work smoothly. The excellence of any machine does not depend upon the great strength of some few of its parts, but its excellence will depend largely upon the smooth and co-ordinate movement of each part. So in the human body the mere possession of great muscular strength is of no special value, but a fine co-ordinate action of all the parts constitutes perfect health, and this should be the aim of every individual, as it certainly is the aim of the American Institute of Physical Culture.

THE BALTIMORE TUBERCULOSIS CONFERENCE.

At a conference held in McCoy Hall on the evening of Jan. 28, presided over by Prof. William H. Welch of Baltimore, at which a number of representative physicians interested in the study of tuberculosis from various parts of the country were present, the following motion by Dr. H. M. Bracken of St. Paul, Minn., and amended by Dr. William S. Thayer of Baltimore, was unanimously adopted: "Moved that the chair be authorized to appoint a committee, with power to act, to consider the conditions existing with regard to the proposed tuberculosis congress and other national antituberculosis associations in the United States; also to consider the formation of a national committee to represent this country at the International Congress at Paris, and that the members of this conference will abide by the action of the committee — also that this committee have power to add to its membership."

In accordance with this motion Prof. William H. Welch appointed the following gentlemen on this committee: Prof. William Osler, Baltimore, Md.; Dr. Edward L. Trudeau, Saranac Lake, N. Y.; Dr. Theobald Smith, Boston, Mass.; Dr. J. G. Adami, Montreal, Canada; Dr. Vincent Y. Bowditch, Boston, Mass.; Dr. S. A. Knopf, New York City; Dr. Mazyck P. Ravenal, Philadelphia, Pa.; Dr. Arnold C. Klebs, Chicago, Ill.; Dr. Edward G. Janeway, New York City; Dr. Henry Barton Jacobs, Baltimore, Md.; Dr. H. M. Bracken, St. Paul, Minn.; Dr. Lawrence F. Flick, Philadelphia, Pa.; Dr. Herman M. Biggs, New York City.

A meeting of this committee was held in New York on the evening of Feb. 27, and various plans were discussed, but it was voted to take no definite action till another meeting, to be held probably in New York early in April, when it is hoped that some final action will be taken towards forming a national committee to represent this country at the International Congress at Paris.

Correspondence.

ALCOHOL AND ALCOHOLISM.

Boston, Feb. 21, 1904.

Mr. Editor: I should like to call the attention of your readers to a bibliography of the scientific literature of the world upon the subject of "Alcohol and Alcoholism" just published at Berlin under the editorship of E. Abderhalden with the collaboration of thirty or forty physicians on both sides of the Atlantic. It is a book of 500 pages and contains about 12,500 titles so admirably systematized that any one who wishes to lay his hand upon more important references on any branch of this subject can easily do so. In the selection of articles for this work the collaborators have aimed to exclude all that was not of definite scientific value. In one section of the work out of upwards of 200 articles examined, only fourteen were chosen on account of the ephemeral character of the remainder. What we have in this bibliography, therefore, is a list not of all that has been written on the subject, but only of all that is worth while.

The work is divided into two main sections, the first dealing with the scientific and medical aspects of alcohol; the second with its sociological bearings. In the first section we have about 1,500 titles referring to the *chemistry* of alcohol and alcoholic beverages, more especially the process of the preparation and fermentation of liquors and the organisms used in this process. One of the subordinate chapter headings in this section bears this interesting title: "Spontaneous Changes and Diseases of Alcoholic Liquids. Pathology of the Organisms used for the Preparation of Alcoholic Drinks."

The next subdivision includes the psychological and toxicological effects of alcohol and alcoholic beverages, the absorption, metabolism and excretion of the drug and its influence upon the functions of the nervous, muscular, respiratory and circulatory apparatus (about 750 titles in this section). Later divisions are concerned with the therapeutical effects of alcohol (about 700 articles), its pathological effects (something over 2,000 references) and its psychological effects (also about 2,000 references). The concluding section of the first part of the book is concerned with the therapeutics of alcoholism and the diseases resulting therefrom (about 1,500 references).

In the sociological chapters of the work the spread of alcoholism in different countries, the work done to combat it both by the state and by private associations and the statistics of its production and consumption are represented.

The work is excellently arranged, full use being made of different varieties of type as an aid to classification and arrangement. Paper and print are excellent. Altogether a very useful work.

Very truly yours,

Richard C. Cabot, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 27, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York	3,908,644	1,797	492	20.70	28.54	3.17	3.15	.27
Chicago	2,021,086	674	173	18.02	20.15	.67	3.73	1.33
Philadelphia	1,407,968	693	184	26.40	24.23	1.58	3.75	3.31
St. Louis	633,696	—	—	—	—	—	—	—
Baltimore	543,229	250	61	20.08	20.00	1.56	.52	.52
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	158	—	25.31	28.48	.63	5.69	12.02
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	335,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	74	28	16.21	33.77	5.40	2.70	1.35
Boston	617,950	216	59	20.83	25.00	1.38	.92	.46
Worcester	136,925	36	13	2.78	8.33	—	—	—
Fall River	119,849	43	20	32.81	30.95	—	9.52	—
Lowell	104,402	37	14	18.91	32.42	—	—	5.40
Cambridge	100,998	23	3	17.39	13.04	—	—	—
Lynn	73,875	28	5	10.71	—	3.57	—	—
Lawrence	72,848	29	12	27.58	27.58	—	10.34	—
Springfield	72,020	24	4	8.33	8.33	—	—	—
Somerville	70,413	27	6	3.70	7.40	—	—	—
New Bedford	68,863	26	7	11.55	15.40	—	—	—
Holyoke	50,538	11	7	9.09	36.36	—	—	—
Brockton	46,601	11	2	18.18	—	9.09	—	—
Newton	39,310	5	—	—	20.00	—	—	—
Haverhill	39,061	10	2	20.00	20.00	—	—	—
Malden	37,205	11	4	—	18.18	—	—	—
Salem	37,188	13	2	—	—	—	—	—
Chelsea	38,499	16	5	12.50	6.25	—	6.25	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	13	3	30.80	7.70	—	—	—
Everett	30,309	3	—	—	—	—	—	—
North Adams	29,201	5	3	80.00	20.00	40.00	—	—
Quincy	26,798	5	1	—	—	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	8	2	12.50	25.00	—	—	—
Brookline	25,576	6	—	—	—	—	—	—
Pittsfield	23,870	8	—	12.50	37.50	12.50	—	—
Medford	21,956	5	1	—	40.00	—	—	—
Chicopee	21,692	10	4	30.00	10.00	—	—	—
Northampton	20,314	10	2	10.00	—	—	—	—
Beverly	15,807	4	—	25.00	25.00	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	2	0	—	50.00	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	5	2	—	40.00	—	—	—
Newburyport	14,478	7	0	42.90	—	—	—	—
Woburn	14,315	—	—	—	—	—	—	—
Melrose	13,819	—	—	—	—	—	—	—
Westfield	13,809	4	—	—	25.00	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	2	—	—	—	—	—	—
Revere	13,609	4	1	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	8	2	25.00	12.50	—	—	12.50
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	1	—	—	100.00	—	—	—
Weymouth	11,350	4	—	25.00	50.00	—	—	—
Plymouth	11,189	—	—	—	—	—	—	—

Deaths reported, 4,325; under five years of age, 1,123; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 906, acute lung diseases 1,068, consumption 429, scarlet fever 55, whooping cough 8, cerebrospinal meningitis 8, smallpox 12, erysipelas 17, puerperal fever 20, measles 31, typhoid fever 60, diarrheal diseases 132, diphtheria and croup 89.

From whooping cough, New York 2, Philadelphia 2, Baltimore 1, Pittsburg 1, Lawrence 1, Holyoke 1. From smallpox, Philadelphia 12. From cerebrospinal meningitis, New York 5, Baltimore 1, Somerville 1, Chelsea 1. From erysipelas, New York 8, Chicago 3, Baltimore 2, Boston 3, New Bedford 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending Feb. 13, the death-rate was 18.4. Deaths reported, 5,396; acute diseases of the respiratory organs (London) 165, whooping cough 182, diphtheria 61, measles 93, smallpox 7, scarlet fever 31.

The death-rate ranged from 6.0 in Smethwick to 29.2 in Newport (Mon.); London 17.7, West Ham 18.6, Brighton 16.9, Southampton 16.2, Plymouth 17.4, Bristol 16.9, Birmingham 22.8, Leicester 18.8, Nottingham 19.1, Liverpool 20.9, Bolton 21.7, Manchester 23.0, Salford 20.7, Bradford 17.7, Leeds 21.2, Hull 16.4, Cardiff 17.2, Rhondda 27.7, Wigan 19.9.

METEOROLOGICAL RECORD.

For the week ending Feb. 27, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 21	30.44	30	42	18	69	63	66	W	S	5	15	C.	O.	0
M. 22	29.64	40	49	30	100	86	91	S W	W	20	30	R.	C.	.75
T. 23	29.82	36	44	27	64	48	56	S W	S W	16	20	C.	F.	0
W. 24	29.58	33	40	26	100	94	97	S	W	3	7	N.	N.	.33
T. 25	29.88	19	26	12	41	53	47	W	N W	24	20	C.	C.	.02
F. 26	30.32	18	26	10	53	42	48	N W	N	15	7	C.	C.	0
S. 27	30.54	22	29	14	66	77	72	N	S E	16	6	N.	N.	.01
Mean	30.03		37	20			68							1.01

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mean for week.

DELAYED PUBLICATION. — The strike, now happily at an end, among printers and pressmen is responsible for continued delay in issuing the JOURNAL.

RECENT DEATHS.

HENRY ALBERT RUNDLETT, M.D., of Brooklyn, N. Y., died from pneumonia on March 8. He was graduated from the Harvard Medical School in 1887, and was in the forty-eighth year of his age.

VERRANUS MORSE, M.D., of Brooklyn, N. Y., died on March 9. He was born in Springfield, N. H., in 1818, and was graduated from Dartmouth College in 1845, and from the Medical Department of the University of the City of New York in 1849. Dr. Morse was one of the founders of the Young Men's Christian Association in New York City, and for many years was prominently identified with the work of the society.

MOSES D. KNIGHT, M.D., of Clinton, Hunterdon County, N. J., died on March 6 at the age of seventy years.

CHARLES T. WHYBREW, M.D., of New York, a graduate of the College of Physicians and Surgeons in the year 1870, died on March 8.

BOOKS AND PAMPHLETS RECEIVED.

Annual Reports of the President and the Treasurer of Harvard College, 1902-3.

Seventy-eighth Annual Report of the Massachusetts Charitable Eye and Ear Infirmary for the year 1903.

Aseptic and Antiseptic Preparations and Treatment of Emergencies after Abdominal Surgical Operations. By George Wackerhagen, M.D. New York: E. R. Pelton. 1904.

Department of the Interior, Bureau of Government Laboratories. Serum Laboratory, Preliminary Report on the Study of Rinderpest of Cattle and Carabaos in the Philippine Islands. By James W. Jobling, M.D. Manila. 1903.

The Worth of Words. By Dr. Raicy Husted Bell. With an introduction by Dr. William Colby Cooper. Third Edition. Revised and enlarged. New York: Hinds & Noble.

University of California Publications. Physiology. The Fertilization of the Egg of the Sea-urchin by the Sperm of the Star-fish. By Jacques Loeb. On the Relative Toxicity of Distilled Water, Sugar Solutions and Solutions of the Various Constituents of the Sea-Water for Marine Animals. By Jacques Loeb. On the Segmental Character of the Respiratory Center in the Medulla Oblongata of Mammals. By Jacques Loeb. On the Production and Suppression of Glycosuria in Rabbits through Electrolytes. By Martin H. Fischer. The Influence of Calcium and Barium on the Flow of Urine. By John Bruce MacCallum.

A Manual of General or Experimental Pathology for Students and Practitioners. By Walter Sydney Lazarus-Barlow. B.A., B.C., M.D., F.R.C.P. Second Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Original Articles.

FORCIBLE CORRECTION IN LATERAL CURVATURE OF THE SPINE.[1]

Fourth Paper.

BY ROBERT W. LOVETT, M.D., BOSTON.

The problem to be met in the treatment of severe lateral curvature with fixed bony changes is a perfectly definite one. A clear understanding of the obstacles to be met and of the means at our disposal for meeting them is essential to successful treatment.

The spinal column having curved to one side has in the course of years become fixed in the deformed position. In addition to the side curve, a rotation or twist in the length of the column has occurred at the seat of the main and compensatory lateral curves. As the result of the maintenance of the vicious position over a long period of time, covering part of the period of growth, changes in bones, muscles, ligaments and intervertebral discs have occurred. The individual vertebræ have become compressed on one side and twisted by the rotation. The ligaments and muscles have become adaptively shortened on one side and stretched on the other and the intervertebral discs to a greater or less extent have become compressed on one side. The region of the vertebral column involved by the curve has lost its normal mobility and is partly or wholly stiff. There are secondary changes in the thorax and its contained organs but these are secondary also in importance.

It is obvious that in the upright position gravity works to increase the deformity by exerting pressure upon the concavity of the curves already atrophied by an abnormal weight-bearing. Of the twenty-four hours in each day only some eight or ten at most are spent in recumbency. During the remaining fourteen or sixteen hours the vertical position is assumed and gravity is at work.

In formulating the relative value of the treatments proposed for the rectification of these severe structural changes in scoliosis it may not be unfair to consider the question on general grounds by comparing the condition, so far as the resultant deformity is concerned, to the common condition known as knock-knee. The bodies of the vertebræ in the curved part of the spine have become affected in their growth so that they are smaller on the side of the concavity of the curve and have become wedge-shaped and the planes of their articulation with each other have become oblique to the horizon; that is, a condition mechanically to be compared to knock-knee exists between each two of the deformed vertebræ.

It may be permissible to consider for a moment the means of correction at our disposal in knock-knee to see what analogous methods may be useful in correcting an analogous mechanical condition in the spine.

[1] Read before the Boston Society for Medical Improvement, Dec. 21, 1903.

The means to be used in knock-knee are: (1) Massage, gymnastics and manual manipulation; (2) braces; (3) prolonged recumbency in a corrected position; (4) operation.

(1) Gymnastics, etc. If one took a girl of twelve with bony deformity sufficient to cause knock-knee and for an hour daily massaged, manipulated and exercised the legs one would expect but slight if any improvement. Even a treatment extending over several hours a day with the use of apparatus to localize and make more effective the exercises would hardly seem likely to prove efficient in the long run.

Gymnastics. The purely gymnastic treatment of severe structural scoliosis is to-day being largely pursued by two classes of persons. First by irresponsible masseurs and medical gymnasts who hold as a tradition that gymnastic exercises are curative or at least helpful in scoliosis, and, second, by competent surgeons who do not believe in corsets or supports.[2] The former class serves only to bring the legitimate use of gymnastics for scoliosis into disrepute; the latter class use the gymnastics understandingly and on the whole take a pessimistic view of the results to be obtained in severe scoliosis. The exercises of course are helpful so far as they go. They improve the muscular condition and by the development of the muscles of the back and sides they obscure the curve of the spinous processes and equalize the contours of the body. Occasionally such gymnastics produce marked improvement in the patient's attitude.[3]

But to expect free muscular exercises to straighten, to any extent, curves caused by deformity of the vertebral bodies seems unreasonable.

Gymnastic treatment after forcible correction and in connection with effective support is, however, of the greatest value and may well be reckoned one of the essentials of successful treatment.[4]

Intermittent force and gymnastics. The use of intermittent corrective force in the treatment of the severer forms of lateral curvature remains to be spoken of. In connection with the use of gymnastics the combination forms to-day probably the most common treatment in use here and in Europe in the hands of competent specialists.

There are two aims of treatment to be kept in mind in this as in every form of treatment. The spine must be made more flexible and muscles must be developed to hold the improved position made possible by this increased flexibility. The treatment may be therefore divided into two heads: (1) Flexibility; (2) correction.

Flexibility is obtained by hanging and head suspension, active bendings and passive stretchings to one side; by the application of side force during suspension by the appliances of Hoffa,[5] Weigel,[6] Wullstein[7] and Schede,[8] and by the appliances of Schulthess.[9] All these measures strive by their daily use to loosen up

muscles and ligaments to enable the patient to assume a more correct position. They are of course useless without supporting and corrective muscular development, for flexibility gained without means of retaining it does more harm than good.

The correction or other part of the treatment is to be obtained by general and special muscular exercises, including the raising of heavy weights, etc. But free standing exercises are with difficulty accurately localized where they are needed and compensatory curves are likely to be increased.

The best development of such corrective work is to be found in the forms of apparatus devised by Schulthess, where resistive and active exercises are given in appliances which accurately localize the movement and control and regulate its force. They are described in detail by him.

(2) *Braces and corsets.* It is pretty generally admitted that the corrective effect of braces in straightening the curves in severe scoliosis is a very slight one. For the most part they are now used for this purpose by instrument makers who sell appliances which are largely worthless and by physicians unfamiliar with the problem of treatment who refer their patients to the instrument shops.

To compare the condition again with knock-knee one would expect but slow gain from the use of braces in a case of knock-knee in a child twelve years old. Yet here the femur and tibia furnish excellent levers for the use of corrective force and the force can be applied directly to the inner surface of the knee.

In severe scoliosis no such direct application of force is possible, as side pressure must be transmitted through the ribs and on account of the mobility of the column a long or accurate leverage is impossible as far as corrective force is concerned.

Braces and corsets are, however, of the greatest use in maintaining the correction obtained by the use of force or by other means. The matter of their best form and construction is discussed at length in other places and many admirable forms exist.[10]

(3) *Prolonged recumbency* in the treatment of scoliosis is the relic of a bygone tradition and need not be discussed, being rarely advocated at present.

(4) *Operation.* The question of the operative relief of scoliosis is still subjudice. An operation was proposed by Volkmann in 1889, consisting of resection of the ribs on the convex side of the curve, and this operation was also performed by Hoffa[11] with fair result. A similar operation was thought out by N. M. Shaffer of New York about fifteen years ago and spoken of to the writer at that time but never put on record, as the general surgeons to whom it was referred refused to sanction it.[12]

The latest and best operative correction has been obtained by Hoke[13] of Atlanta, Ga., who resected the ribs on the convex side of a girl of nineteen and lengthened those of the concave side in a severe dorsal curve. By the application of a corrective jacket great improvement was obtained.

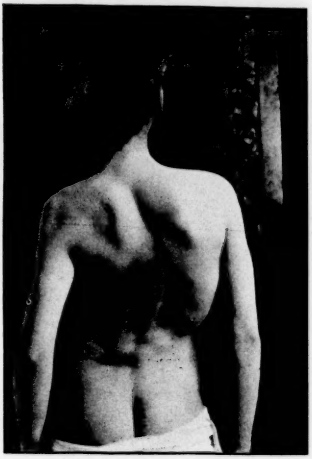
These forms of treatment excepting the operative are not, however, new and have been tested by years of use, and the best comment on their value is to be found in the divided opinion of writers as to which is the best, and in the frequent expressions from competent persons of skepticism as to any great improvement to be expected in severe scoliosis under any therapeutic measures.[14]

It remains, therefore, to look the ground over once more to see if in the application of general surgical principles there is not some more rapid, rational and effective way of attacking the deformity than the methods described.

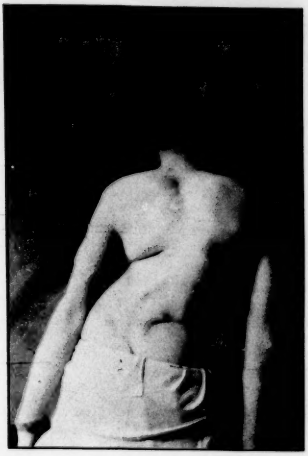
Of factors making for spontaneous improvement there are none so soon as a certain stage of the deformity is reached. Of conditions to be utilized for the improvement there are two; one, of great significance, was elucidated by the experiments of Wullstein.[15] Some young dogs were kept for months with the spines laterally flexed by means of bandages and springs. At the end of this time true lateral curvature with marked bony deformity of the type described above was present. It would seem fair to state from this that growth in a distorted position of the spine tended to produce deformity of the vertebræ at the points of greatest pressure and that Wullstein's experiment needed only to be reversed to produce improvement in the severer cases of curvature in children still growing.

The second consideration bearing on the treatment is to be found in certain procedures in the manipulation for club foot, in which by forcible manipulation with the hands[16] or a lever[17] a distorted foot with abnormally shaped and improperly developed bones is made by a few minutes' forcible stretching to assume an approximately correct position. If it is held long enough in the improved position, diminution of the deformity is secured. Two conclusions from the above-mentioned facts seem to me to bear upon the question under discussion: (1) Forcible manipulation can immediately stretch muscles and ligaments where the bones are avowedly deformed and seriously misshapen and can secure a temporary change in bony relations; (2) abnormal pressure from abnormal position during the period of growth will modify the shape of bones and stretch muscles and ligaments.

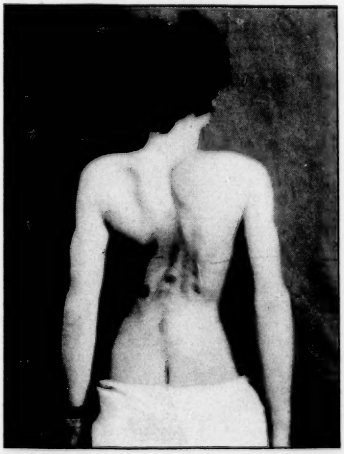
To put it still more simply the best chance of improvement in cases of severe scoliosis would seem to be (1) to use severe force to secure an improved and if possible an overcorrected position temporarily; (2) to retain as much as possible of the position thus secured during some part of the growing period. It is perfectly obvious that for this purpose a high degree of force will be necessary, especially in the case of adolescents. This force must be accurately localized during its application and the retention apparatus must be accurate and capable also of exerting retentive force of rather high degree.



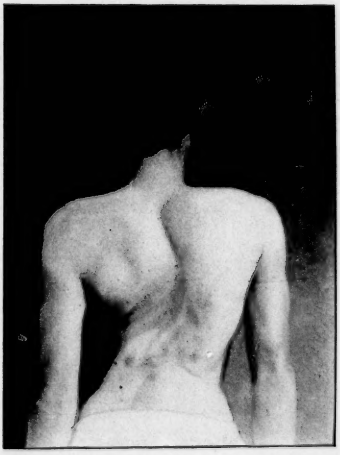
CASE I. Aug., 1900.
13 years old. Brace Treatment.



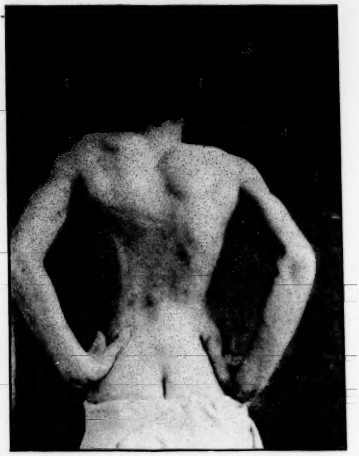
CASE I. Jan., 1903.
Brace Treatment.



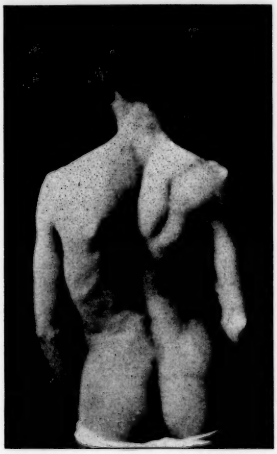
CASE I. Feb., 1903.
After three Corrective Jackets.



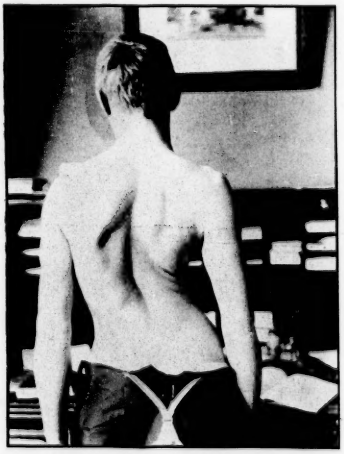
CASE I. Oct., 1903.
Retentive Jacket and Exercises.



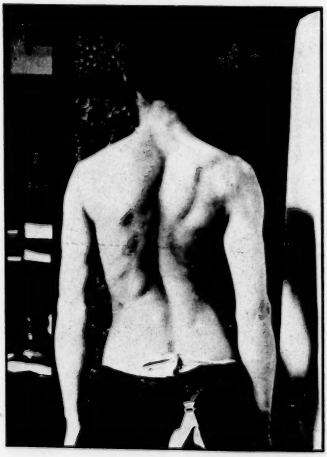
CASE I. Dec., 1903.
Position Obtainable by Self-correction with Hands.



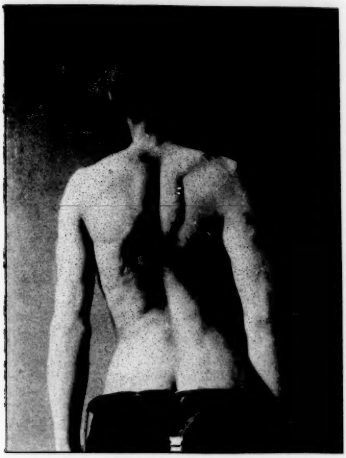
CASE II. Aug., 1901.
18 years old. Before Corrective Jackets, after many years of Brace Treatment.



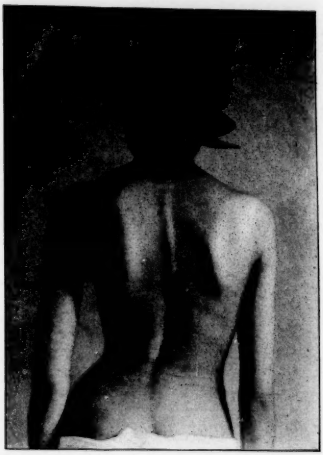
CASE II. Dec., 1901.
Some Months after Corrective Jackets, under Treatment by Retentive Jacket and Exercises.



CASE II. Dec., 1902.



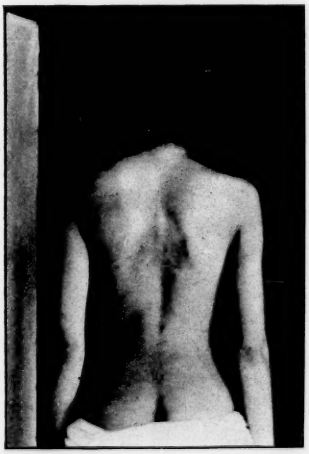
CASE II. Nov., 1903.



CASE III. July 7, 1903.
18 years old. Before any Treatment.

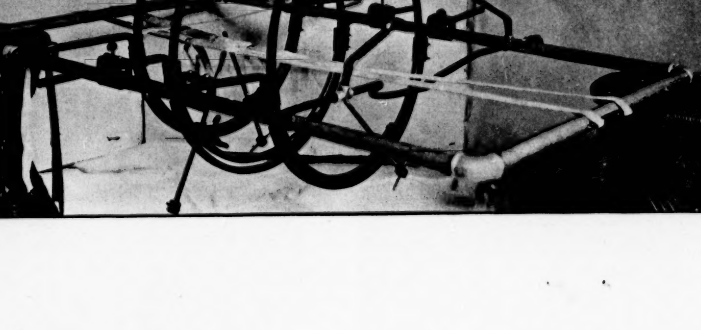


CASE III. July 14, 1903.
After one Jacket.



CASE III. Oct., 1903.
Under Treatment by Retentive Corset and Exercises.





As to how such force can best be used two mechanical conditions bear upon the application of force to the deformed and curved spine.

The least economical use of force in straightening, for example, a bent stick is to pull the two ends away from each other, *i.e.*, to straighten it by a pull in its length. The most economical use of force to straighten it is to take it by the two ends and press the point of greatest convexity against some resisting point which shall push it straight. The relative force exerted will be recognized if one is reminded how easy it is to break a bent stick by striking it on the knee while one hand holds each end and how very difficult it would be to break the same stick by a pull in its length.

Again if one wishes to secure the greatest side displacement in a flexible rod, such displacement is more easily secured when the rod is not stretched in its length. If a rubber tube, for example, is fastened to a table by two pins, one at each end, and is not put on the stretch the middle of it can easily be pulled an inch to one side by the forefinger. If, however, it is pinned to the table by two pins separated enough to hold it on the stretch it will require much more force to displace it one inch to the side. The same is true of a strip of sponge rubber or a piece of rattan.

To be sure that this theoretical consideration applied to the human spine the following experiment was made at the Harvard Medical School by the courtesy of Prof. Thomas Dwight.

A young male cadaver was laid on the face and straps passed around the body at the level of the right shoulder and the right hip. These straps were then fastened to the left side of the table holding the shoulder and hip against pressure from the left. A strap was then passed around the left side of the thorax and by means of a spring balance pulled to the right. The side deviation of the spine was then measured at four levels, the measurements being taken from a base line connecting the cervical spine and the sacrum. The measurements were all made from pins driven into the spinous processes. Three experiments were made with a side pull of 25 lbs. and the results were recorded.

A Sayre head sling was then put around the head of the cadaver still lying on the face and a traction force of 75 lbs. was made, the feet of the cadaver being fastened to the table. While the traction on the head was thus in force the same side pull of 25 lbs. was made as before and the results noted. Two experiments of this sort were made. It was found that the spine without traction was displaced to the side nearly twice as far by a definite side pull as by the same amount of side pull when traction was being made.

A confirmatory experiment was made on a boy of fifteen, using 75 lbs. of head traction and 15 lbs. of side pull. The result was the same.

The conclusion is that extension of the spine by an upward pull on the head is a corrective force in scoliosis but that much more force is required to accomplish a certain amount of side correction than is the case if the force is applied from the side.

The other conclusion is that to secure the maximum of side displacement from a given amount of side pressure the spine must be slack and not stretched in its length.

Finally, it may be said that to obtain growth in a desirable position, *overcorrection* of the existing deformity should be obtained where possible. It is obvious that to obtain this the use of great force will be necessary.

The treatment of severe scoliosis by plaster jackets applied in a corrected position is not new. But the force used has been on the whole mild and generally applied to the spine during suspension. Bradford and Brackett [18] described a frame in which the jacket was applied as the patient lay prone, but even here head traction was used. Hebel, Calot, Redard and others have also used the horizontal position.[19] Yet in 1898 Hoffa, the well-known German authority, wrote in his textbook, "Bei den Skoliosen dritten Stadiums lasst sich eine Besserung in der Contour des Rumpfes erzwingen, man kann ein weiteres Fortschreiten der Verkrummung bis zum Aeussersten verlusten und die Interkostal Neuralgien beseitigen." [20]

The whole question was given a new impetus by Calot's work on the forcible correction of the deformity in Pott's disease published in 1896, and a few articles dealing with the subject have appeared since then.[21] The later tendency has been toward the use of much greater force than was previously employed.

The most noteworthy advance in the forcible corrective treatment of scoliosis has been made by Wullstein, who has applied the above-mentioned principles with force and precision and who publishes photographs showing marked improvement in patients. His method is to forcibly extend the head while the patient's pelvis is strapped to a seat which can be tilted to make the pelvis oblique and which also can be rotated to change the relation of the pelvis to the spine. Lateral pressure is made by pads running in horizontally from the sides of the apparatus. By a combined motion of the seat and adjustable pads any degree of twist of the spine upon the pelvis may be produced. Wullstein uses an appalling amount of force in his traction, applying up to 250 lbs. of pull, and he applies a plaster jacket while the patient is thus stretched and pushed into a corrected position. This jacket embraces, as must all such jackets to be wholly efficient, the chest, shoulders and head.

I do not personally believe that Wullstein's attempt to correct rotation by a torsion of the whole spine is based upon correct principles nor that torsion can be so corrected (for reasons given in another paper),[22] but with this unimportant exception the method is progressive, rational and effective.

The amount of force required, however, is excessive, as must be the case where force is not

economically applied. He is attempting to straighten the bent stick by pulling the two ends apart, and when a great amount of force has thus been expended in stretching the spine, lateral pressure is applied, when it also must be pushed to an extreme on account of the stretching of the spine in its length.

I had been working at the same problem in the attempt to utilize the force in its most efficient way by making side pressure, that is, attempting to straighten the bent stick by bending it over something instead of trying to pull apart its ends, and published my first results in 1901.[23]

More extended experience has confirmed me in the belief that even in adults much correction may be accomplished by the use of properly directed side force and that, at least in growing persons, retention in the corrected position causes diminution of the bony deformity.

The criticism that such correction is not likely to be permanent at once presents itself. The method in its later application is too new to enable one to make the statement that such results have proved to be permanent in cases observed, consequently one must consider the probabilities on general grounds. The grounds that lead one to suppose that retention of the corrected spine in a corrected position over a sufficient period will lead to a change in the shape of the bones of the vertebral column and to a permanently improved position are as follows:

(1) Clubfoot may be cured by a similar proceeding.

(2) The bones of the feet of Chinese women of rank are seriously misshapen by retention in an unnatural position.[24]

(3) Wullstein produced bony changes in dogs by a few months of abnormal position.

(4) W. Arbuthnot Lane has demonstrated that the carrying of heavy loads by laborers will produce changes in the bony skeleton and that the changes vary according to the habitual position of the load,[25] the bones subject to the greatest pressure undergoing changes in shape.

(5) The fact that bone under pressure changes shape after growth has been reached is shown in the fact that scar tissue pressing on bone will cause a change in shape,[26] *e. g.*, on the chin.

(6) Pressure of tumors or aneurism will cause absorption of bone.

These facts all point to the conclusion that bone alters its shape under changed conditions of pressure, and that although this would be more marked during growth, the phenomenon is not unknown in adult life.

For a permanent cure, therefore, retention for some time in the corrected position is essential.

My attempt, therefore, has been to exercise as much side pressure as can be borne upon the slack spine (that is, the spine not stretched in its length). I have done this in the hope of stretching muscles and ligaments and thus in time changing the relation of vertebræ misshapen by pressure. Having thus secured an improved position I have endeavored to retain it by portative apparatus and gymnastic exercises.

No preliminary treatment in the way of stretching and forcibly manipulating the spine has been used in preparing patients for the application of the jacket. Both Wullstein and Schauz use the corrective apparatus finally to be used for the application of the jacket for several days to loosen up the spine and secure an improved position when the final application of force is made.

To secure the slack condition of the spine correction has been applied in the prone position. To diminish as far as possible the physiological curves (especially the lumbar) during the correction the legs have been flexed and allowed to hang down. In the earlier corrections the patient lay face downward on two straps of webbing tightly stretched from one end of a gas-pipe frame to the other, the legs hanging down and the feet resting on the floor or on a box. Side pressure was then made by bandages running from the side of the frame around the convexity of the lateral curves and back to the side of the frame. In this way satisfactory results were obtained, which will be shown later in the article.

But there are obvious objections to this method which aims only at correction of the lateral deformity and which does not attack the rotation.

It has been long recognized[27] that corrective retention jackets often increase the rotation by diminishing the lateral curve. It has been pointed out by the writer that in fixed curves corrective side pressure results in increase of the rotation and corrective forward pressure to diminish the rotation results in increase of the lateral deformity. The method of the writer was therefore open to the objection that it might increase the rotation permanently while improving the lateral deviation. Such would not seem to be the case in the photographs shown, but the method was obviously incomplete, theoretically in any event.

The writer's aim in devising a corrective apparatus was to keep the two corrective elements separate, that is, to correct the side curve and then by a forward or back pressure to correct the rotation while the side correction was maintained. In this way neither of the two need be corrected at the expense of the other, but the maximum of one having been obtained and held the maximum of the other was added. Either could be used alone and the relative amounts of each regulated.

Oblique pressure, which aims at securing correction of both side deviation and rotation by the same force, is less accurate and can be better used when split into its two components. Most if not all of previous apparatus has aimed at oblique corrective pressure.

The problem of the application of plaster jackets on this plan having thus presented itself was worked out mechanically by Dr. Z. B. Adams of the Boston City Hospital, at the time

assistant in the lateral curvature clinic at the Children's Hospital.

The apparatus constructed by him consisted of a heavy gas-pipe frame three by four feet. The patient lies face downward on two webbing strips running from end to end of the frame with the legs flexed. Near the bottom of the frame is an adjustable crossbar bent to fit into the flexure between the thigh and the pelvis on which the patient rests the lower part of the body. Sliding on this bar are two arms, which slide in and clamp down on the buttocks, holding the pelvis steady on the crossbar. This bar is movable from side to side in order to induce or correct curvature in the lumbar region when necessary. There are three vertical transverse rings two feet in diameter fastened to pieces on the sides of the frame so that they can be moved to any desired point along the frame. These rings are also movable from side to side and by an independent movement they can also be rotated through a half circle. Any one of these movements can be checked at any point by turning a screw. The shoulders are held by a pair of axillary straps fastened together by a strap across the chest in front. These straps are suspended from the ring nearest to the top of the frame and can be made to hold the shoulders in any desired degree of twist by a rotation of the ring.

Each ring is provided with two long screws at the two poles of the ring. These screws are adjustable upon the ring and can be set at any desired angle to it. By rotating the ring and adjusting the angle of the screws they can be made to screw down or up upon any part of the back or chest.

For the application of the jacket the patient lies on the face on the two webbing strips, the lower part of the trunk resting on the cross rod and the bars clamping the buttocks; the feet rest on the floor and the arms are extended above the head. The rings are then adjusted at the two levels where it is desired to make correction, generally in the dorso-lumbar and the dorsal regions. For side correction a bandage is fastened to one side of the ring, carried around the patient's side over a heavy pad of felt and back to the ring. The same is done to the other ring at the other level where side correction is desired, while the top ring controls the shoulders. The rings are then pulled to one side, the bandages around the patient tighten and any endurable degree of side correction obtained.

When the side correction is made the ring is rotated till the screws are opposite the points where it is desired to correct rotation. They are then screwed down on to the patient, their points being protected by sheet-iron pads two by three inches, which are covered with heavy felt. These pads are incorporated in the jacket.

The shoulders are controlled by the axillary pads attached to the upper ring along with screw pressure up or down as desired. In the correction each level is separately attacked.

The pelvis is always held firmly and cannot rotate. If two curves exist, correction of the lower curve is first made — first, side correction, then rotation correction. Next, the dorsal curve is attacked and corrected to square with the pelvis. The shoulders are finally inspected, pulled to one side if necessary and twisted into a parallel position to the pelvis. A plaster jacket is applied to the patient held in this way. It is easy to see that the method is perfectly definite and that the amount of force at the operator's disposal is very great.

Separate correction in two planes may be made at any level while the pelvis is firmly held and correction at one place may be made independently of correction at any other place and either side deviation or rotation or both may be corrected at each level.

In the third case in which the apparatus was used a child six years old with a very severe curve from infantile paralysis was corrected. The deformity yielded readily without much pain and almost wholly disappeared; a jacket was applied; ether was not used. The child showed signs of collapse in the night and the next morning was somewhat cyanotic and stupid although conscious, radial pulse was absent, the extremities were cold and bluish and the condition generally alarming. The jacket was split and the alarming signs disappeared.

In the cases in which this frame has been used it has seemed to have very great corrective power, and great power is needed if overcorrection is to be obtained, which, just as in club-foot is the desideratum.

Such corrective jackets are worn for a period of two or three weeks and changed once or twice, just so long as further correction seems obtainable by another jacket. In the earlier jackets good correction seemed to have been obtained in a week and that period was adopted, but that time seems on general grounds to be too short and the longer period has been substituted. The last corrective jacket when removed is used as a mold for a plaster torso and a leather or celluloid or other retentive corset constructed from it. This is worn day and night and only removed once a day for heavy corrective gymnastic work, which is pushed to the limit of the patient's capacity.

Such retentive apparatus, whatever it is, should aim at holding the patient in an over-corrected position or as near it as possible from the pelvis to the base of the skull.

It is not intended here to dwell on braces or corsets, but rather on the essentials of the method. A useful brace, however, for out-patient work is found in a leather corset stiffened by bayberry tallow with a window for pressure from a leather pad on the convexity, the point of counterpressure being offered by an iron bar and two pads, one over the pelvis and one in the axilla, on the other side of the jacket. It is essential that room be given on the side away from the pressure for the patient to be pulled over and this is arranged by cutting out part of the side of the jacket on the side of the concavity of the curve and pulling by straps on the

pad set in the window over the convexity. In my experience jackets may be gradually discontinued in all but the extreme paralytic cases after a period of perhaps two years.

With regard to the relative merits of the suspended and the prone position it may be said —

That suspension works on the whole spine and distributes itself and untwists the rotation while it straightens the lateral curve, but it is obviously not corrective enough by itself when pushed to its limit or Wullstein would not have to add to it side pressure. The chief objection to it is that it is an uneconomical application of corrective force and that pushed to the point of obtaining overcorrection it must reach an almost unendurable grade of pull.

In the prone position fainting is less likely, there is less discomfort, and far less force is required to obtain a definite amount of correction, because the force is more economically applied and the back can be inspected through the early part of the process.

Personally, I think it a great advantage to have the lumbar curve held by the jacket as flat as possible, as thereby I believe that a corrective extending force is exerted upon the dorsal curve.[28]

The claims of efficiency to be made for the apparatus may be repeated:

(1) The most economical use possible is made of the corrective force by applying it sideways and thus less force is required or the same amount of force will do more than in extension of the spine.

(2) The force is applied to the spine while slack and not made tense by extension.

(3) Side correction is made by one part of the appliance.

(4) Correction of rotation is made by another part of the appliance.

(5) The pelvis is held in a position which ensures some flattening of the lumbar curve, which in the upright position tends on account of the balance of the patient to bring about straightening of the dorsal curve.

(6) Finally, it may be said that general pathological considerations would seem to indicate that retention in the corrected position should induce changes in the shape and relations of the misshapen bones.

CASE I. Boy, thirteen years old in 1900. Severe infantile paralysis of one side of back and one leg, shortening of one leg of one and a half inches. Treatment for some years by braces and gymnastics. Forcible correction by four jackets in January, 1903. Since then retention in celluloid jacket, daily stretching in the prone position and hanging, with a few gymnastic exercises to develop the remaining muscles. A doctor who had given exercises in 1901 and previously and who examined the boy in December, 1903, wrote, "I found that he had gained considerably in muscular power. The back muscles were much stronger and the abdominal muscles had gained also."

CASE II. Eighteen years old in 1901. Severe infantile paralysis of one side of back and of leg; very rigid. Brace treatment for many years. Plaster correction jackets applied in 1901. Retention jacket and exercises since then. Gain in height since 1901, seven-eighths of an inch.

CASE III. Girl, eighteen years old, no previous treatment. Rigid scoliosis; no paralysis; four corrective jackets in July, 1903; since then exercises and retention corset.

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HYDROTHERAPEUTIC PRESCRIPTIONS.

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DURING the past decade rational hydrotherapy has made great advances, particularly in Germany and Austria. The position hydrotherapy occupies to-day in the treatment of disease is largely due to the physiological and clinical investigations of Winternitz of Vienna, which placed the empirical water treatments on a scientific foundation. We are now able to predict, as von Hoesslin [1] says, the action of a definite hydrotherapeutic procedure in a given case with as much certainty as we can that of morphine and digitalis.

Dr. S. Solis Cohen, in his "System of Physiologic Therapeutics," suggests that "there should be maintained in every city an establishment to which any physician might refer his patients with a definite hydriatic prescription, just as he can now send them to the apothecary with a definite pharmaceutic prescription." A number of Boston physicians, feeling the need of such an establishment, met together at the suggestion of Dr. J. J. Putnam on Oct. 13, 1903, to consider the advisability of maintaining an institution for physical therapeutics "where pri-

[1] v. Hoesslin. Penzoldt u. Stintzing Handbuch der Therapie innerer Krankheiten, Jena, 1903, v, p. 110.

vate patients could be carefully treated and suitable researches carried on, and which should be under the supervision of a competent physician."

It was realized that unless such an institution was established facilities would be lacking in Boston for giving patients the benefit of the best methods of physiological therapeutics.

On motion of Dr. F. C. Shattuck it was voted to ask a committee composed of Drs. J. J. Putnam, E. G. Cutler and R. W. Lovett to propose a plan for organizing and maintaining a hydrotherapeutic establishment. The report of the committee was accepted and through its labors and the generosity of physicians and laymen a hydrotherapeutic institution owned and controlled by the medical profession was rendered possible.

Any surplus income is to be devoted to improving the establishment or adding new apparatus. The "Medical Baths," as it is called, was opened early in December, occupying quarters in the Farragut Building at the corner of Massachusetts Avenue and Boylston Street. There is a reception room, five small treatment and dressing rooms, a large treatment room and a douche room with a Baruch douche apparatus. The treatments are given by graduate male and female nurses well trained in hydrotherapeutic methods.

Many valuable hydriatic procedures can be carried out in the homes of patients very simply if a trained attendant is available, but of all forms of water treatment, the douche is the most powerful and the most varied in its action. The douche treatment requires elaborate apparatus and skilled operators. It differs from other hydrotherapeutic measures in its mechanical effect, which promotes reaction and increases stimulation. Pressure and temperature can be perfectly controlled by means of Baruch's table, and hydriatic prescriptions exactly followed.

In hydrotherapy precision of method is essential to success. The effort has been made in the following pages to present the modes of treatment which experience and experiment have shown to be the best. Only the institution-treatment of chronic disease is considered. It is of course understood that these prescriptions must frequently be modified to meet individual needs. The reaction of the patient is the usual guide to such modification.

In all chronic diseases, but especially in diabetes, chlorosis and neurasthenia, the hydriatic treatment should be considered only as a part of the whole management of the case. If this is remembered the treatment will succeed in cases where it would otherwise fail.

Chlorosis and other forms of anemia. The value of hydrotherapy in chlorosis has only recently been recognized. The treatment should begin with mild measures. In debilitated individuals and all unaccustomed to cold bathing it is well to begin with the hot pack followed by the wet mitt friction (Prescription 1). When cutaneous lesions are present the cold towel rub should be used (Prescription 2).

As soon as the patient's skin becomes accustomed to cold water the wet sheet rub may be substituted for the wet mitt friction. This is the "*Abreibungen und Abklatschungen*" of the Germans (Prescription 3). And when this is well borne, the half-bath may be used (Prescription 4). As soon as the feeble patient by these moderate graduated measures has been trained to react well the stronger and more effective douche treatment is indicated (Prescriptions 5, 7). More robust patients and those accustomed to cold water can dispense with the milder applications and begin with the tonic douche.

v. Noorden makes use of the carbon dioxide bath in chlorosis (Prescription 6). In fact, he thinks it indicated in almost all cases. Sweat baths have been employed recently in chlorosis by Hegglin, Paul Schmidt, Dehio and Romberg in Curschmann's private practice (Prescription 8).

Chronic arthritis. Sweating procedures when there is no cardiac complication (Prescription 9). Unless there is a tendency to acute exacerbations it is well to follow the hot bath with a stimulating douche (Prescription 10). Local hot-air or electric-light baths are frequently beneficial (Prescriptions 11, 12).

Bier begins the course of treatment with the hot-air bath and later employs congestion-hyperemia (Bier's "*Stauungs-hyperæmie*," Prescription 13). Schuller and many others recommend the Scotch and the alternating douche (Prescription 14).

Douche-massage has been much used at Aix-les-Bains for a long time, and the method has quite recently been recommended by v. Leyden, Beissel and Machzun (Prescription 15).

Chronic muscular rheumatism. The procedures enumerated above under chronic arthritis are useful, especially short hot-air baths and the Scotch douche.

Sciatica and other forms of neuralgia. Vapor bath followed by hot pack (Prescription 16). Scotch or alternate douche to painful areas (Prescription 14).

Organic disease of the spinal cord, especially tabes. Hydriatic procedures are recommended by Erb, Senator, v. Strumpell, Stintzing, Matthes and others. Cold douches as a rule are poorly borne. The carbon dioxide baths hold the first place, especially in tabes, except when irritation phenomena exist (Prescription 6).

Exophthalmic goiter. Carbon dioxide baths (Prescription 6).

Chronic pleurisy. Wet sheet rubs, half baths and douches to the affected side are recommended by Fodor and Matthes (Prescriptions, 3, 4, 14).

Pulmonary tuberculosis. Hydrotherapy is a valuable adjunct to fresh air, good food and rest. With debilitated, poorly nourished individuals the hot pack followed by the wet mitt friction is recommended (Prescription 1). Other tonic procedures can be used to advantage (Prescriptions 3, 4, 5, 19).

Cardiac insufficiency. Hot baths weaken the heart, cold baths strengthen it. Carbon dioxide baths are of the greatest service. Benecke and August Schott were the first to show their specific action on the heart. They are indicated in cases with slight disturbances of compensation. Severe angina pectoris and advanced arteriosclerosis are contraindications. The baths should be administered by a physician or experienced nurse only. If the bath is of proper strength elevation of blood pressure occurs, associated usually with slowing of the pulse. Repeatedly we have demonstrated that the left border of the heart was 1 cm. nearer the midsternum after a bath. It is our custom to measure the blood pressure with the Riva-Rocci sphygmomanometer before and after each bath. Baths too strong for the heart overtax and injure it. If too weak there is no elevation in blood pressure and no diminution in the width of cardiac dulness (Prescription 18). A treatment consists usually of 25 to 30 baths, but the duration depends naturally upon the patient's condition. A course of less than 20 baths will not effect permanent good (Romberg).

The value of the baths is enhanced by combining with them the therapeutic exercises. As T. Schott has well said, "Movements without design weaken the heart; movements with design, on the contrary, strengthen the heart."

Cardiac neuroses. See neurasthenia.

Chronic gastritis, nervous dyspepsia, enteroptosis and *motor insufficiency of the stomach.* The wet sheet rub, cool half-baths and tonic douches have an invigorating influence and improve the appetite. Begin with a mild treatment such as indicated in Prescription 3. After a few days the skin will become used to the cold applications and then the douche should be employed (Prescriptions 5, 9). When there is epigastric pain or distress the Scotch or alternate douche to the abdomen is helpful (Prescriptions 14, 21). For enteroptosis, Boas recommends strong jet douches for the tonic influence they exert on the abdominal muscles (Prescription 20).

Constipation. Nothnagel advocates cold douches, but most authorities prefer the alternate douche (Prescription 22).

Diarrhea. General hydriatic procedures are used to improve the general condition (Prescriptions 1, 3, 4, 5, 19). v. Jaksch has recently highly lauded the cold sitz bath in chronic diarrhea, even when the condition is the result of serious disease of the intestine. Winternitz recommends that the cold sitz bath should be preceded by a wet sheet rub (Prescription 23).

Hemorrhoids. The cold ascending douche is of service. Its use can be combined with a general tonic treatment (Prescription 24).

Hypertrophy of the prostate. Prescription 24.

Neurasthenia. A stimulating treatment with the cold douche is of great value in many cases. If the patient is weak mild measures should be used at first, until by graduated procedures the skin becomes accustomed to cold water. Begin with the hot pack and wet mitt friction (Prescription 1) and then after a few days the wet sheet rub can be used instead (Prescription 3). Later the half bath (Prescription 4). In most cases by the end of ten days the douche can be used with advantage. At first the pressure should be low and the douche of very short duration. The skin should be well heated before any cold application. Well nourished individuals, especially men, will react well to the circular and jet douche at the beginning of the treatment and with them some or all the milder procedures may be omitted (Prescriptions 5, 25). The procedure indicated in Prescription 5 is the milder treatment, and is used chiefly with women. The best results with any given number of treatments are obtained when the treatment is repeated daily. Baruch advocates the following mode of procedure: Prescription 26 one week; Prescription 27 for the second week, Prescription 28 for the third week. For the type of neurasthenia with excitation, Beni-Bardi recommends the neutral douche. This has a sedative effect (Prescription 29). The Scotch douche to the back is indicated in neurasthenic spine (Prescription 14). The Scotch or alternate douche applied to localized painful areas may be helpful. The Scotch douche to the legs is useful in some forms of persistent headache (Prescription 30).

Hysteria. Excitable type (Prescription 31). Depressed type (Prescriptions 30, 32).

Chorea. To improve the general condition v. Strumpell recommends the wet sheet rub and short cool douches (Prescriptions 3, 19). Gowers uses sweating procedures (Prescriptions 8, 9, 10).

Chronic nephritis. Moderate sweating baths are of great service in keeping the skin active and healthy, and are also used for reducing edema and combating the milder symptoms of chronic uremia,—headache, mental torpor and bodily lassitude, anorexia, etc. They should be repeated two or three times a week. After a hot bath a salt glow followed by a hot douche is refreshing. Cold baths or douches are harmful in nephritis (Prescription 3). v. Leube and more recently Strauss have sounded a warning against too energetic sweating procedures in nephritis. The hot full bath is now used quite extensively in place of the sweat bath in the treatment of nephritis (Prescription 34).

In treating chronic interstitial nephritis with signs of cardiac failure the carbon-dioxide baths have been used with success by Baur and Matthes. The temperature of the bath should not be lower than 86 (Prescription 18).

Obesity. As F. A. Hoffmann says, no obesity treatment is complete without hydriatic procedures (Prescription 35).

Diabetes. Naunyn, v. Mering and v. Noorden recognize the importance of hydrotherapeutic aids in the diatetic treatment of this disease. Tonic measures increase metabolism, invigorate the patient and improve the condition of the skin (Prescriptions 1, 3, 4, 5, 25). v. Leyden. Handbuch der Ernahrungstherapie, I, p. 554. Leipsic, 1897.

PRESCRIPTIONS.

(1) Hot pack until skin is warm and cutaneous vessels dilated. Wet mitt friction, using water at 60° F. Repeat daily, reducing temperature of water 2° each treatment until 40° is reached. — *Kellogg.*

(2) Hot pack until skin is warm. Cold towel rub; temperature of water 60°. Repeat daily, lowering temperature of water 1° each treatment till 40° is reached. — *Kellogg.*

(3) Hot-air bath nearly to point of perspiration. Wet sheet rub; temperature of water 70°. Repeat daily, lowering temperature of water 1° each day until 60° is reached.

(4) Hot-air bath to point of perspiration. Half bath; temperature of water 70°; duration 1 minute. Repeat daily, lowering temperature gradually to 60° and increasing length of bath to 3 minutes.

(5) Hot-air bath to point of perspiration. Circular douche 105°–110°–90°, 2 minutes. Fan and jet douche to entire body 90°–80°, pressure 10 lbs., 1 minute. Lower minimum temperature 2°, and increase pressure 2 lbs. each treatment until a temperature of 60° and a pressure of 30 lbs. are used.

(6) Carbon-dioxide bath, 300 gm. HCl, 300 gm. Na_2CO_3; duration 10 minutes. Repeat three to six times weekly. Increase strength gradually to 500 gm. of acid and salt and duration to 15 minutes.

(7) Hot-air bath to perspiration. Circular douche 95°–80°, 30 seconds. Spray douche, 70°, 30 lbs., 5 seconds. General massage 10 minutes. Reduce temperature of spray douche 1° daily. — *Baruch.*

(8) Vapor bath; temperature 120°; ½ hour. Friction with warm dry towels. Rest in bed 1 hour. — *Nonne-Dehio.*

(9) Hot-air or vapor bath, 15–25 minutes, followed by dry pack 30 minutes. Rest in bed 1 hour. — *Matthes.*

(10) Hot-air or vapor bath, 15–25 minutes. Circular douche, 105°–110°–90°, 2 minutes. Jet and fan douche, 90°–85°, 1 minute, pressure 10 lbs. Repeat two or three times weekly, increasing pressure 2 lbs. and reducing terminal temperature 2° each treatment until pressure of 30 lbs. and temperature of 60° are reached.

(11) Local hot-air bath to affected joint, temperature 90° C., 1 hour. Spray douche 70°, 15 lbs. pressure, 10 seconds. Repeat daily, increasing temperature of bath 2° daily until temperature of 130° is reached.

(12) Local electric light bath, 15 minutes. Spray douche 70°, 15 lbs. pressure, 10 seconds. Repeat daily, increasing duration of electric light bath 2 minutes until length of bath is 40 minutes.

(13) Congestion hyperemia to affected joints, 1 hour. Repeat daily. — *Bier.*

(14) General hot-air bath to point of perspiration. Circular douche 105°–110°–90°, 2 minutes. Scotch or alternate jet douche to affected part or painful areas. Repeat daily.

(15) Massage and douche to affected joints, temperature of douche 92°–100°, duration 10 minutes. Circular douche 98°–110°, 2 minutes. Fan and jet douche to entire body, temperature 70°, pressure 15 lbs., duration 10 seconds.

(16) Vapor bath, 120°, 10 minutes. Scotch or alternating douche to painful parts. Hot pack 30 minutes. Rest in bed 1 hour. Repeat thrice weekly.

(17) Hot-air bath to point of perspiration. Circular douche 105°–90°, 2 minutes. Rain douche 86°–80°, 40 seconds, pressure 10 lbs. Oil rub. Reduce final temperature of rain douche 1° and increase pressure 1 lb. until temperature of 60° and pressure of 20 lbs. are reached.

(18) Carbon-dioxide bath, Na_2CO_3, 100 gm., HCl, 100 gm.; temperature 95°; duration 7 minutes. Content of CO_2 and duration to be increased and temperature lowered until duration of 20 minutes, temperature of 80° are reached and 1000 gm. of acid and salt employed. For first two weeks take baths three times a week, later every day. — *Romberg.*

(19) Hot-air bath to point of perspiration. Circular douche 105°–110°–100°, 2 minutes. Spray and jet douche to entire body, pressure 15 lbs., 70°, 20 seconds. Repeat daily, raising pressure 2 lbs., and reducing temperature of cold douche 2° each treatment until pressure of 35 lbs. and temperature of 60° are reached.

(20) Hot-air bath to perspiration. Circular douche 105°–95°, 2 minutes. Jet douche to abdomen 75°, 30 seconds. Spray douche to entire body, 75°, 10 seconds, pressure 12 lbs. Abdominal massage. Repeat daily, increasing pressure 1 lb. and lowering temperature 1° each application until 25 lbs. and 60° are reached.

(21) Hot-air bath to perspiration. Circular douche 105°–95°, 1 minute. Jet douche to abdomen, 10 lbs., 86° raised gradually to 120°, 15–10 minutes. Fan douche to abdomen, then to dorsal region, 13 lbs., 60°, 15 seconds. General jet douche, 70°, 5 seconds. Repeat daily for gastralgia. — *Beni-Barde.*

(22) Hot-air bath almost to perspiration. Circular douche 105°–95°, 1 minute. Small jet douche to course of colon, alternate 60° and 115°, 15 seconds each, pressure 15 lbs., 1–2 minutes. Fan douche to chest and back 75°, 10 seconds. Repeat daily for constipation, increasing pressure 2 lbs. each treatment until 30 lbs. are used.

(23) Hot-air bath until cutaneous vessels are dilated. Wet sheet rub. Sitz bath, temperature 70°, 10 minutes. Simultaneous hot foot bath, temperature 110°. Repeat daily, increasing duration gradually to 20 minutes and lowering temperature to 50°.

(24) Hot-air bath to perspiration. Circular douche 105°–95°, 1 minute. Ascending douche 60°–70°, 2–3 minutes, 5–10 lbs. pressure. Rain douche 105°, 30 seconds. Fan douche to entire body, 10 seconds, 15 lbs., 70°.

(25) Hot-air bath to point of perspiration. Circular douche 105°–90°, 2 minutes. Jet and fan douche 90°–80°, 15 lbs., 1 minute. Jet douche to spine 75°, 15 seconds. Lower minimum temperature 2° and increase pressure 1 lb. each application until pressure of 35 lbs. and temperature of 50° are reached.

(26) Hot-air bath until cutaneous vessels are dilated. Remove before perspiration begins. Circular douche 95°–85°, ½–1 minute. General fan douche 80°, 20 lbs., 10–20 seconds. Dry rapidly. Walk in open air, until somewhat fatigued. Repeat daily, reducing minimum temperature 1° each treatment. Once during week allow patient to perspire 5 minutes in cabinet. — *Baruch.*

(27) Hot-air bath almost to point of perspiration. Circular douche 95°–85°, ½–1 minute. Fan douche to back, 75°, 20 lbs., 5 seconds. General fan douche 78°, 30 lbs., 15 seconds. After several days substitute jet douche for fan douche to back, lower temperature of general fan douche 1° daily. — *Baruch.*

(28) Hot-air bath to beginning perspiration. Circular douche 25 lbs., 95°–80°, 1 minute. Jet douche to back, 30 lbs., 75°, 5 seconds, daily reduced 1°. Friction. Walk in open air. — *Baruch.*

(29) Hot-air bath to beginning perspiration. Circular douche 10 lbs., 105°–92°, 3 minutes. General fan douche 10 lbs., 85°, 15 seconds. Walk slowly in open air. Repeat daily, increasing pressure and lowering temperature until 15 lbs. and 80° are reached.

(30) Hot-air bath to point of perspiration. Change

cold compresses to head frequently. Circular douche 100°–90°, 2 minutes. Scotch or alternate jet douche to legs and feet, 15 lbs. Repeat daily, increasing pressure 1 lb. each application until 30 lbs. are borne.

(31) Wet pack; temperature of water 60°–70°, 1 hour. Circular douche 85°, 20 lbs. pressure, 15 seconds. Repeat daily; once or twice weekly initial temperature of circular douche 90°, reduce quickly to 75°, followed by fan douche, 85°–65°, 20 lbs. pressure, 5 seconds. — *M. P. Jacobi and Baruch.*

(32) Hot-air bath to perspiration. Circular douche 25 lbs. pressure at 85°, 30 seconds. Spray douche 65°, 5 seconds. After a few applications, use jet douche to spine at end of treatment for 3 seconds, temperature 65°. Lower temperature of jet 2° daily until 50° is reached. If this is well borne pressure may be increased 2 lbs. daily until 30 lbs. are reached. — *Baruch.*

(33) Vapor bath 120°, 15 minutes. Ice bag to praecordia. Salt glow. Jet douche to entire body, 10 lbs., 110°, 30 seconds. Rub dry. Rest in bed 1–2 hours. Repeat two to four times weekly, increasing pressure until 30 lbs. are employed and gradually increasing length of vapor bath to 30 minutes.

(34) Hot full bath, 100° raised to 106°, 5 to 10 minutes. Salt glow. Fan or jet douche to entire body, 110°, 30 seconds. Massage to edematous portions. Rest 1–2 hours before dressing. Repeat two to four times weekly, increasing pressure until 30 lbs. are used.

(35) Hot-air bath, 40–60 minutes. Soap shampoo. Half bath; temperature 70°, 3–5 minutes. General jet douche, pressure 25 lbs., temperature 70°, 20 seconds. Dress quickly and walk until fatigued. Repeat daily, increasing duration of hot-air bath and lowering temperature of douche as condition of patient indicates.

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AN ACCOUNT OF THE WORK, INCLUDING OBSTETRICAL TECHNIQUE, AT THE LYING-IN HOSPITAL OF THE CITY OF NEW YORK.[1]

BY CHARLES H. BRADLEY, M.D.

I HAVE been requested to outline for you the work done at the Lying-In Hospital of the City of New York. Understanding that this society is especially interested in medical education, I shall speak more of the obstetrical education of the student at this hospital, and for this reason will deal at length with the Outdoor Service.

History. — In 1799 a number of public-spirited citizens of New York petitioned the governor that they be incorporated as "The Society of the Lying-In Hospital of the City of New York," with the express purpose of finding homes and giving medical assistance to women in child-bed. To this worthy purpose the society owes its birth.

Thirteen years ago the Broome Street Dispensary and the society joined forces; an indoor service was added in 1895, the hospital standing on the site of the present one, which was opened Jan. 1, 1902. The building of this new hospital was made possible through the generosity of Mr. J. Pierpont Morgan and other citizens of New York. This description would be incomplete without recording the indomitable energy shown by Dr. James Markoe and other directors in supervising the construction and adding the many details that make this hospital a leading exponent of the science and art of obstetrics.

The Student. — The Lying-In Hospital is an institution the purpose of which is to teach obstetrics, quite as much as to conduct a work of charity. This purpose being fully recognized one cannot but believe that the student benefits thereby. The student resides in the main hospital during his term of service, — a restaurant being provided where he may obtain food at cost.

The service is three weeks in duration, and divided into two parts, that obtained in the hospital and that in the outdoor service. The first seven days are spent in the hospital, where he has demonstrated all normal and abnormal cases, makes rounds with the visiting physicians and house staff and receives instruction in the diagnosis and treatment of those abnormalities incident to the anti-, inter- and postpartum periods. Each afternoon he goes to the antipartum rooms, where all cases are examined applying for care in their homes during the labor. The house staff teach him the symptoms and signs of pregnancy, their importance and the treatment of any abnormality arising. Here he has an opportunity to practice the methods of sterilization of his hands for a vaginal examination. Thus by the end of seven days he has become familiar with the technique, incident to the care of a normal case of labor.

Before going to the outdoor service he receives instruction in the use of the contents of the "labor" and postpartum bags, the correct method of keeping the outdoor histories, of making postpartum calls and the asepsis and antisepsis employed.

Outdoor Service. — For the next seven days he is a junior on the outdoor service, the junior of the week before becoming a senior. He now accompanies one or other of the eight seniors on the labor cases, acting as assistant and being given abundant opportunity to examine all cases. In addition, he makes four to six postpartum calls daily; these, on account of the large area covered by the department, are assigned according to locality. Before being entrusted to make calls alone, he is taken by the

[1] Read at the Section for Obstetrics and Diseases of Women of the Suffolk District Medical Society, Nov. 25, 1903.

outdoor staff and taught the method of making postpartum examinations, the points to be noted and the treatment of any abnormality.

On his return to the hospital he reports any abnormality, which is entered opposite the patient's name, on a slate. He then writes the result of his examination on each patient's history, and signs it.

During the last seven days of his service he is a senior and rotates with eight other seniors in the care of the cases applying for treatment in the outdoor department.

To each case of labor he takes a full antipartum record of the case, covering:

Past History, special attention being paid to the gynecological and obstetrical portions.

External Examination, including heart, lungs, breasts, abdomen, uterus, child, external pelvimetry, height, weight, varicosities and edema.

Internal Examination, including measurements of outlet, diagonal conjugate, depth of symphysis, and calculation of true conjugate; the condition of perineum, vagina, cervix and uterus (bimanual).

While on a case of labor he is required to send to the hospital or its branch a report every two hours, stating the progress of the labor. Throughout the labor he keeps a miniature labor sheet, so that he has only to copy this on to a larger sheet on his return to the hospital. While he is attending a labor, he is visited by one of the staff on duty, the external and internal examination and any abnormality investigated. In all primiparæ he is further required to send a report when the os uteri is fully dilated, in order that one of the staff may reach the case, to instruct him regarding the perineal stage, and the methods used to prevent laceration. Thus the hospital holds the student responsible for his work: (*a*) By requiring his signature to each history, and postpartum visit. (*b*) By a report every two hours during a case of labor. (*c*) By having each labor case visited by the staff. (*d*) By noting the receipt of the call, departure and return of student by means of a time clock.

Outdoor History Room. — A room is set aside for the writing of the outdoor histories. Here each student has a clip containing the cases he visits. This room is in charge of one of the outdoor staff, who serve in turn, and are responsible for the accuracy of the records. Each labor case is examined, and all postpartum calls are investigated, so that any mistakes may be pointed out to the student while the case is fresh in his mind.

During his period of residence the student keeps the application number of each case he has demonstrated to him or delivers. This report is verified and signed before he leaves the hospital. At the termination of his service, if his work has proved satisfactory, he is awarded a certificate.

The Outdoor Staff. — The outdoor department attends about twenty-five hundred cases annually, and for their care the hospital employs one chief of staff (the house surgeon), nine staff men, a head nurse and about twelve nurses.

The staff are on duty twenty-four hours, the time being divided into two calls, 9 A.M. to 12 P.M., and 12 P.M. to 9 A.M. During each call the care of a certain portion of the service is assigned to him, as: Discharging of patients, antipartum examinations, ambulance work, visiting students on labor cases, care of abortions and those abnormalities noted by the student on his postpartum visits. Each abnormality is visited, treated, and a record of the case written in the "Abnormality Book," from which it is copied by the medical clerks into the patient's history.

The length of staff service is four months, ten weeks on the outdoor and six weeks on the indoor service, the appointments being made by competitive examination.

The Outdoor Department. — The outdoor department has a branch on Broome Street in the heart of the East Side where reports and labor calls are received and antipartum examinations made.

This office is open day and night, — duplicates of all student reports are kept both at the branch and the hospital (which is connected by private wire) so that the staff may follow the progress of the labor cases as he makes his rounds.

To give some idea of the population surrounding the Broome Street branch, I can do no better than to quote a few statistics from the New York state census of several years ago.

In the seven adjoining blocks there is a population of over twenty thousand, or nearly three thousand to the block, or five hundred thousand to the square mile. In New York the foreign born number 43% of the total population, but in the East Side 62.5%. Persons of foreign parentage in the whole city 80% and in the East Side 95%. Of these 54% are males, and 46% females. The percentage of families living in one room is 5.6% as compared with 12% in Philadelphia, or 13% in the tenement district of Baltimore.

Care of Postpartum Cases. — The care of the cases during the first three days postpartum devolves on the outdoor nurses.

When a nurse comes to the outdoor department she has been trained in the wards, nursery and operating room, where she acts as assistant to the indoor staff during the delivery of cases. Hence she is experienced in making postpartum calls, and her accuracy of observation can be relied on. The first two days the cases are visited twice daily, the third day once, a record of the visit being written in the history. On the fourth day the cases go to the students and are visited once daily, save on the sixth and eighth days, if normal, being discharged on the ninth day by the staff, and a record of the examination made on the history.

The work of the department is aided by the Ladies' Auxiliary, who keep a large supply of

materials to be sent to patients, and furnish scrubwomen to clean the rooms. A diet kitchen gives additional aid in assisting both patient and family during the puerperal period.

Labor. — The hospital depends on the patient to furnish a pail for waste water, a basin for hand washing and a supply of hot water.

The bag taken to the labor contains all the utensils necessary for the delivery of a normal case.

Two rooms are devoted as a laboratory to the outdoor department; here dressings are prepared, instruments sterilized and bags repacked. Nurses are at work day and night, so that all a student does, when called for a case of labor, is to apply at the laboratory for a bag.

Labor Bag. — The bags are made of leather, and lined with the same material; they are 17 inches long, 9 inches wide and 9 high, opening wide at the top, and when packed weigh 20 lbs. When a bag is returned from a case it is emptied of its contents, wiped out with a cloth soaked in corrosive and repacked with fresh materials. A list of the articles contained in the bag is herewith enumerated: 1 rubber pad, 1 douche bag, 3 agate basins, 2 vaginal douche tubes, 1 can sterile sponges, acetic acid, sterile green soap, alcohol, 1 can sterile vulva pads, 1 catheter, 1 bottle dry dressings, 1 bottle boric acid wipes, 1 nail brush and wooden point, silver nitrate 1%, comp. cathartic pills, 6 tapes for cord, 1 scissors, 1 pelvimeter, 1 eye dropper, scales, tape measure, oichloride tablets, sterile vaseline, miniature labor blank, birth certificate and reports.

The Rubber Pad is a modification of Kelly's pad, the seams being less numerous, and hence the durability increased. It is cleaned by scrubbing with soap and water, sterilized by scrubbing with 5% carbolic acid. By this method it lasts about a year. The pad is used in all labors, not only to protect the bed from discharges, but the patient from the infective bed clothing.

The Douche Bag is a four-quart fountain syringe, cleaned and sterilized in the same way, and lasts about six months.

The Agate Basins telescope one into the other, the larger are used for bichloride and hold about a pint. The shallow basin holds the scissors, tape, boric acid wipes and cord dressings, each in its container. The basins are sterilized by washing with sapolio and corrosive 1-1000.

The Douche Tubes are of glass, straight, with bulb ends. They are placed in a brass cylinder (brass having been found preferable to copper, as it can be bought as tubing and is seamless), with a perforated lid, and sterilized.

The Sterilizer used is the Bramhall-Deane, the contents being exposed to steam under 12½ lbs. pressure, for thirty minutes.

The Soft Rubber Catheters are carried in a jar with a screw cap.

The Tape for the cord is bobbin, one-fourth inch in width, and cut in 12 inch lengths; these are placed in a bottle with a screw cap.

The Dressing for the cord is dry gauze, cut in 2 inch squares, and packed in a 4 oz. salt mouth glass bottle.

The Wipes for mouth and eyes are of gauze, 2 inches square, and packed in a similar manner, in a saturated solution of boric acid. All the above articles are sterilized under 12½ lbs. pressure.

The Vulva Pads are made from cotton waste, cut in sections 4 inches square, and ½ inch thick; two of these strips rolled in gauze will make a pad 8 by 2 inches. They are packed in cylindrical copper cans, perforated at the ends, and sterilized.

Cotton Waste is packed in a larger can, sterilized and used for sponging during the labor.

Nail Brushes have wooden backs and bristles of wood fiber. They are sterilized in a small copper cylinder; with the brush is placed a wooden point for cleaning the nails.

The Scissors for cutting the cord are sterilized in a towel.

Delivery. — Normal cases are delivered on their own beds, a board being inserted under the mattress if obtainable, and the mattress covered with enamel cloth or newspapers. Over this is placed the rubber pad, the end draining into a pail.

Position of Patient. — The side position is insisted on during delivery, since it raises the patient's genitals from the bed, keeps the hands of the attendant from touching it and gives a better control of the head during the perineal stage, while more of the patient's legs and shoulders can be covered than in the dorsal position. The materials used during delivery are placed on a chair and used directly from their containers.

Whenever assistance is required, the hospital is notified either by telephone or report, and the staff takes a bag with him containing additional supplies.

Contents of Staff Labor Bag. — Perineorrhaphy set, packing set, 3 tubes gauze, sterile green soap, fluid ext. ergot, hypodermic set, 2 intrauterine douche nozzles, sterile towels, sterile brush, infusion set, chloroform and mask.

The Perineorrhaphy Set consists of thumb forceps, 2 volsella needle holders, uterine dressing forceps, and needles, sterilized in a towel. *The Gauze* is packed in glass tubes, each containing 12 yards, and sterilized. *The Intrauterine Nozzles* are packed, and sterilized as previously described. *Chloroform* is contained in a plain drop-bottle; the *Mask* is that of Esmarch. The suture material consists of plain, chromic and silkworm gut.

Sterilization of Hands. — (1) The nails must be short, all abrasions covered with collodion. (2) The hands are scrubbed for three minutes with green soap and hot water. (3) Rinsed in clean water, the nails being cleaned with the wooden point. (4) Scrubbed again with soap and hot water for two minutes. (5) Scrubbed in 1-2000 corrosive for three minutes.

The fingers are brought in contact with the

genitals wet with bichloride, no lubricant being used.

Preparation of a Normal Case. — A normal case receives no antipartum douche, the vaginal secretion rendering the vagina sterile, while antiseptic and mechanical treatment renders it more liable to laceration. Any case that has inflammation of vagina or bladder at time of antipartum examination receives appropriate treatment in the outdoor clinic.

For normal labor the only preparatory treatment is external. When a student reaches a case of labor his first duty is to cleanse the genitals in the following manner: (*a*) If the vulva hair is matted it is cut, otherwise not. (*b*) The external genitals, inside of thighs and abdomen, are scrubbed with soap and water, followed by corrosive 1–2000; this being repeated every six hours in prolonged labor.

The patient is delivered on her left side, as previously described, both legs being flexed, the right foot resting in the junction of left thigh and leg. The attendant having sterilized his hands passes the left in front of the patient's abdomen, between her thighs; with this hand he controls the advance of the head, leaving his right free to sponge or reinforce the left when necessary. As soon as the head is born, the patient is turned on her back, the delivery being completed in this position.

When the cord stops pulsating it is tied and cut, a vulva pad wrapped around umbilicus, and tied over the back, the child covered, and laid aside. In the meantime the eyes and mouth have been wiped with boric acid and 1% silver nitrate instilled into the eyes. Thirty minutes are allowed for the spontaneous separation of the placenta; if at the end of this time it has not done so, it is separated manually by the method of Credé.

The fundus uteri is held from the delivery of the child, until one hour following expulsion of the placenta. Following the expulsion of placenta the genitals are wiped off with corrosive, and a vaginal douche of the same antiseptic, 1–8000 administered, not so much as an antiseptic precaution as a prophylactic against uterine hemorrhage. A vulva pad is then applied, followed later by an abdominal binder.

The Child. — The child is thoroughly examined, both body and diameter of head measured, greased with sterile vaseline and later washed, the cord being dressed with materials before described.

Much has been written of late regarding the advisability of vaginal examinations during the progress of labor, but it seems necessary in conjunction with external palpation, in the instruction of the student. On the outdoor service 27,693 examinations were made on 5,109 patients in the first stage of labor, an average of five examinations to the patient; 22,627 in 5,843 cases, in the second stage, an average of four examinations, and in spite of this extensive use of material for instruction the mortality of all cases dying of sepsis was only 0.14%.

Operations on the Outdoor Service. — For a *perineorrhaphy* the patient is drawn to the edge of the bed or placed on a table; anesthetized or not as the operator prefers. The inside of the thighs and genitals are scrubbed with soap and water and washed with corrosive. Sterile towels are placed below and above each thigh, and the perineorrhaphy set laid on a chair near the bedside.

The same preparations may be used for packing, the gauze being held in glass tubes. When the cervix has been drawn down by a volsellum the gauze is introduced from its container into the uterus, the tube being held by an assistant, or in his absence between the knees of the operator.

For *intrauterine manipulations* gloves may be used, being easily carried in a glove case.

When more serious operative interference is necessary, the lightest room in the tenement is selected, a table covered with a blanket or comforter and the rubber pad placed at one end. The patient after being anesthetized is placed on the table, the legs being held by means of a canvas crutch. The vulva hair is shaved, the patient scrubbed with sterile green soap and water; then 5% lysol, followed by boiled water and 1–3000 corrosive. For curettage the vagina is scrubbed with soap, water, lysol and douched with corrosive. The legs are encased in sterile towels, abdomen and rubber pad being covered with the same materials. The preparation above described is the same for forceps, curettage or version.

In a case of curettage, if the uterus has been packed the gauze is removed, otherwise the cervix is dilated with the Godell-Ellinger dilators, a digital examination made, following which the uterus is gone over with the dull, followed by the sharp curette. A hot corrosive douche, 1–5000, usually controls the hemorrhage; if not, the uterus and vagina are packed with iodoform gauze, the vaginal portion beng removed in twenty-four and the uterine in forty-eight hours.

Cultures are taken from the vagina and uterus before curettage and these with the curettings are sent to the pathologist for examination, the findings being recorded on the history of the case.

The Uterine Culture Tubes consist of a large tube ten inches in length and one inch wide. Inside of this, and running its length, is a glass tube, the lower end of which is plugged with cotton, to which a string is attached; the upper end is contained in the cotton plugging the mouth of the test tube. Inside the inner tube is the brass wire with swab attached, the free end of wire extending outside tube about three inches, and with it the string attached to the plug.

The perineum is depressed by means of a speculum, the cervix thoroughly swabbed, and the inner glass tube and swab introduced into uterus; the plug is now drawn out by means of the string, the swab pushed up to the fundus, then redrawn into tube and out through the upper end.

Special bags are kept packed with the sterile materials and instruments necessary for forceps and curettage, and can be sent to a case on the shortest notice.

Symphysiotomy and Cæsarean section have been performed on the outdoor service, but at present cases needing these operations are sent to the hospital in the ambulance. At all severe operations a nurse and at least two of the staff are present.

I have here a pair of Tucker-McClain solid blade forceps, used almost exclusively in the Sloane Maternity, — their advantages, you doubtless know, are: Ease of application, less liability to lacerate the child and the perineum, owing to the narrowness of the shanks, while their opponents claim a greater liability to slip.

The time will only allow a mere outline of the work inside the hospital. The service is divided into three divisions, each under a director and having a separate staff. Each division occupies a floor of the hospital, which consists of two postpartum, an antipartum and septic wards, six private rooms, a reception room, examining room, crying and operating rooms. The house staff on each floor consists of a senior and junior. The clinical and pathological laboratories, solarium, amphitheater and kitchens are on the seventh floor. The hospital has its own electrical and printing plants. A statistical department consisting of a registrar, assistant registrar and clerk classify and file all labor cases, keeping a card index of the same; so that the statistics of the hospital are kept ready for publication.

Nurses. — The nurses come from the various hospitals of New York, Brooklyn and suburban cities, from the Massachusetts General, Boston, and Lakeside Hospital, Cleveland, Ohio. The course is three months, being a portion of their hospital training. Post-graduate courses are arranged for both physicians and nurses.

House Staff. — The staff come from the various medical schools of the United States and Canada, as many as ten different schools being represented at one time.

Such, gentlemen, is the Lying-In Hospital, an institution connected with no medical school, its students coming from all parts of the country.

It fills a need, having the only large outdoor service in New York City.

Its results cannot but be far reaching, and of great benefit both to the profession and the community at large.

Clinical Department.

TWO SIMPLE FORMULÆ FOR USE IN THE ARTIFICIAL FEEDING OF INFANTS.

BY I. STANLEY KAHN, BOSTON CITY HOSPITAL.

IN the artificial feeding of infants, various formulæ have been suggested for the preparation of "home modifications" or "laboratory milks," whose constituents should be present in proportions suitable to the age and development of the child in question. I should like to offer for consideration a simple formula which will give approximately the amount of food required in twenty-four hours by the average healthy infant at various ages.

This formula reads:

The 24 hour amount in ounces=

$$11 + 5\sqrt{\text{The age of the child in weeks}}$$

This square root need only be approximate, and if taken by mental arithmetic gives as satisfactory a final result as if time is spent for its exact mathematical solution. In tabular form below are given some of the amounts obtained by using the formula in this manner, showing how closely they correspond with those advised by various observers.

24-HOUR AMOUNT IN OUNCES.

Age of Child	Formula	Ladd	C'd Oppenheim[1]	Starr[2]	Holt[3]
Up to 1 week	10*				
1 week	16	10	10	12	10–15
2 weeks	18	15	15		15–30
3 "	20		20	17	
4 "	21	22½			22–32
5 "	22				
6 "	23	24			
8 "	25	26	25		24–36
10 "	27				
3 months	28	28	28		28–38
4 "	31	31½	29	32	
5 "	33	33	31½		
6 "	35	34½	33	36	33–42
7 "	37	37½	39		
8 "	39	42	42	40	
9 "	41	42	42		
10 "	43	42½	42½		37–45
11 "	44	43½	44		
12 "	46	45	45		

From a glance at this table, it will be noted that the formula amounts differ but little from those obtained by practical observation. When it is considered how much these observers differ amongst themselves, which is but natural when it is remembered that their results can at the best be only approximate, and that each individual case must be judged for itself, it will be seen that any errors in the case of the formula, if really actual, amounting at the most to 2 or 3 oz., do not obviate its usefulness. This is emphasized by the fact that every error of 2 or 3 oz. is distributed over a number of feedings, rendering the amount given in the individual feeding practically identical with the amounts usually assigned as correct, and may hence be disregarded without harm.

In addition to the above formula, a second gives, with sufficient accuracy, the number of feedings in twenty-four hours according to the age of the infant to be fed. This second formula reads:

The number of feedings in twenty-four hours=

$$11 - \sqrt{\text{The age of the child in weeks.}}$$

In making this calculation, in order to avoid fractions in the final result, the exact age in weeks should be replaced by the nearest number

* Obtained from the formula,— Amount=11+5 $\sqrt{\text{o.}}$

[1] Oppenheim: "Medical Diseases of Childhood," 1900, p. 88.

[2] Starr: "American Textbook of Diseases of Children," p. 24.

[3] Holt: "Infancy and Childhood," 1901, p. 178.

with an exact radical; thus, in a child of seven months, using $\sqrt{25}$ instead of $\sqrt{28}$. Below are seen the results given by this formula compared with those prescribed by the Ladd Card.

NO. OF FEEDINGS IN 24 HOURS.

Age of Child	Formula	Ladd Card
1 week	10	10
2 weeks	10	10
4 "	9	9
6 "	9	8
2 months	8	8
3 "	8	7
4 "	7	7
5 "	7	6
6 "	6	6
7 "	6	6
8 "	5	6
9 "	5	6
10 "	5	5
11 "	4	5
12 "	4	5

From the total amount and the number of feedings, the size of the individual feeding can be easily computed. These two formulæ thus give the working practitioner the means for obtaining quickly results essentially as accurate for all practical purposes as those given in the various tables and textbooks.

New Instrument.

A NEW NEEDLE HOLDER.

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,

Consulting Surgeon to the St. Joseph's Hospital; Attending Surgeon to the Rhode Island Hospital, Providence, R. I.

THE number of needle holders which from time to time have been devised is an evidence that none are satisfactory to the majority of surgeons.

The holder shown in the cut I trust may meet the requirements some surgeons are seeking. The handle is one that may be firmly and easily held, thus having the instrument under complete control. The ratchet may be operated by the thumb, downward and outward pressure releasing, downward and inward pressure securing, the grasp of the needle. The last notch in the ratchet should always be used, irrespective of the size of the needle, as the elasticity of the



steel in the upper blade will accommodate it to any size needle. The jaws of the instrument being narrow and pointed permit the use of the holder in small and deep localities. A little time should be devoted to studying and practicing the methods of holding and releasing the needle, so that one may be able to use the needle holder with facility. The instrument was made for me by George L. Claflin & Co., Providence, R. I.

Medical Progress.

REPORT ON THORACIC DISEASE.

BY J. W. BARTOL, M.D., BOSTON.

INFLUENCE OF DWELLING ON SPREAD OF TUBERCULOSIS.

ROMBERG and Haedicke[1] report the results of a careful investigation, based on statistics and personal observation, of the morbidity and mortality record of tuberculosis in Marburg since 1890 with especial reference to localization amongst certain classes or districts of the city.

An epitome of their findings is: (1) Taking the one-fifth of the population in poorest circumstances, phthisis is present in 4.7%, while in the remaining four-fifths in better standing, it is found in only 0.2%. (2) Thirty-four per cent of reported deaths from tuberculosis occurred in 2.6% of the 1,503 dwelling houses. Amongst the poorest quarters, however, 59.2% of all tubercular disease was located in 33.6% of the dwellings existing in the given quarters. (3) Situation, construction and number of dwellers do not serve to explain relative frequency of cases in certain buildings. Although multiplication of cases does not occur in dwellings kept clean and neat, on the other hand, slovenly conditions alone do not account for occurrence of numerous cases in one household. (4) General considerations lead to the conclusion that most cases can be referred to the influence of infection. (5) Most cases are the result of not a single but of repeated infection with tubercle bacilli. Existence of conditions favoring repeated infection in the dwellings of the poorer classes leads to multiplication of cases in certain households, and in this aspect makes tuberculosis a disease influenced by the dwelling and therefore to be combated, especially in the poorer quarters of a town.

HEMATOGENOUS MILIARY TUBERCULOSIS OF THE LUNGS.

Several points of interest are apparently cleared up by Sawada[2] in a study of cases of miliary tuberculosis in rabbits' lungs resulting from the injection of bacilli into either the peritoneal cavity, the carotid or the anterior chamber of the eye. Investigations were also made as to the age at which the pulmonary lymph nodes develop in both infants and young rabbits. The conclusions reached are: (1) Hematogenous tuberculosis of the lungs experimentally produced in rabbits follows the statement of Ribbert for similar condition in man, in always originating in the lymph nodes. (2) Tubercle bacilli circulating in the blood, unless occurring in clumps, will not be arrested in the broader capillaries of the alveoli, but will locate within the lung if they pass into the narrow

[1] Deut. Archiv. klin. Med., Bd. lxxvi.
[2] *Ibid.*, xlvii.

branches of these capillaries which surround the lymph nodes. (3) Noteworthy differences exist in the reaction to hematogenous infection of the lungs of full-grown and of young rabbits. These differences depend on the stage of development of the pulmonary lymph nodes which do not reach completion until some time after birth. (4) In man the lymph nodes apparently do not reach full development until the fifth to seventh year. Experimental evidence indicates that it is on account of the incomplete development of the lymph nodes in the lungs of the young that children below this age contract the pulmonary form of miliary tuberculosis less frequently than adults. When they do contract it, it is probably in consequence of the presence in the circulation of large numbers of very virulent bacilli.

TREATMENT BY TUBERCULIN.

In a delightful account by Trudeau of his thirty years' work at Saranac given as Henry Phipps Institute lecture [3] he incidentally reports the results with tuberculin from 1890 to 1901. In these years 143 cases were treated by the various forms as prepared by Koch, including TR. Of these 143 cases 58% are alive, 33% are dead and 9% are untraced. In comparison, of the 1,367 cases treated during the same time without tuberculin 38.9% are alive, 39.6% are dead and 21.4% are untraced. This leaves apparently a credit of 20% in favor of the tuberculin treatment, but since the value of such a deduction is impaired by the fact that the tuberculin cases were to a certain extent selected and possibly of somewhat more favorable type, a comparison is made of the incipient cases only, which during the same period were treated with and without tuberculin. Of such cases which received no tuberculin 61% are alive, while of the tuberculin treated cases 76.7% are still living. A small but definite balance is thus still left in favor of the treatment.

DILATATION OF THORACIC AORTA AS CAUSE OF EMPHYSEMA.

Golubow [4] calls attention to the importance in all cases of emphysema of unexplained origin, especially in the elderly or those of syphilitic taint, of looking very carefully for aneurism or dilatation of the arch. Cases are detailed in which dilatation apparently led to a well-marked emphysematous condition and the causal relationship is explained on the basis of a reflex persistent cough set up by pressure on the vagus with emphysema as a result.

INTERCOSTAL PHONATION AND LITTEN'S PHENOMENON.

Abrams [5] records his experience with intercostal phonation (a diagnostic phenomenon first described by Stiller and consisting in the presence or absence of transmitted vibrations in the intercostal spaces when short words are spoken by the patient) as leading to the conclusion that, while it is often useful in determining the boundary between the lung and the liver or spleen, and in recognizing the existence of a pleural effusion or differentiating the same from pulmonary infiltration or tumor, the limitations likely to interfere with its demonstration are sufficient to prevent its attaining great value.

The study of the phrenic shadows, on the other hand, he finds of constant value, and from the fact that in many cases it furnishes a reliable substitute for the x-ray it is to be commended as a routine practice. In executing the manouvre he finds it not necessary to carry out the original directions for placing patient and observer but advocates (after skill in recognizing the shadow has been gained in the conventional way) placing the patient with back to window in diffuse light with arms raised and body inclined slightly backward, while the observer sits a few steps away with his back also to the window. In this way the shadow on both sides may be seen at the same time. The picture may be intensified by coloring yellow the skin over the given area, or by drawing taut a fold of skin in the vicinity.

CYTO-DIAGNOSIS.

The value of the different cells as indicators of the underlying process in pleuritis and other serous accumulations continues to be investigated by various observers with varying estimates. Kelty and Torday [6] give a review of reported progress of other observers and, as a result of study of 42 cases of their own, state several specific findings and the following general conclusions: Cyto-diagnosis is of great importance and practical worth in the discrimination of primary pleuritis in its early stage. A high-grade lymphocytosis in a case beginning with acute symptoms proves a tubercular origin. Lymphocytes may occur in pleural effusions of other origin in later stages, but in such cases other formed element and clinical observations serve as sufficient discriminating factors. The opinion already current that in later stages of acute cases not tubercular, lymphocytes are present in large numbers and indicate the chronic character of the process, is correct.

AUTOLYSIS IN LOBAR AND UNRESOLVED PNEUMONIA.

Among the alterations in structure and consistence, presumably autolytic in nature, Flexner [7] would include those occurring in acute yellow atrophy, Zenker's degeneration, the softening of infarcted areas and in malignant tumors. Turning to the lung, he says that, while in croupous pneumonia autolytic action is plainly an important factor in resolution, in caseous pneumonia autolysis begins probably only when certain bacteria invade the necrotic areas. Reasoning from the probable fact that in many pathological conditions the leucocyte is the essential agent in bringing about absorption, the conclusion seems justified that an explanation of

[3] Med. News, Oct. 24.
[4] Deut. Med. Wchnschr., Oct. 1.
[5] Med. Rec., Aug. 8.
[6] Deut. Archiv. klin. Med., Bd. lxxvii.
[7] Univ. Penn. Med. Bull., July-August.

the facility of resolution in croupous pneumonia and the difficulty of the same process in caseous, lies largely in the relative absence of leucocytes in the tuberculous process and their presence in enormous numbers in the acute inflammatory condition. Based upon the assumption, broadly stated, that exudates and necrotic tissue are removed by absorption or organization (both of which processes may be included under autolysis) and the experimental fact that autolysis takes place quickly and perfectly in gray hepatization but slowly and imperfectly in red hepatization and in cases of unresolved pneumonia, the conclusion is drawn that while autolysis after death is a mark of the tendency during life for the exudate to become absorbed (abundance of leucocytes), the absence of autolysis in unresolved pneumonia is equally an indication of the fate of the exudate during life to undergo organization. The fact being that the exudate in unresolved pneumonia is fibrinous rather than cellular and many of the alveoli are filled with dense hyalin fibrinous masses, the view seems a reasonable one that unresolved pneumonia is an acute lobar pneumonia in which the inflammatory exudate, either because of some disproportion between the leucocytes and other constituents or other cause as yet unknown, failing to autolyze perfectly, cannot be absorbed, and hence undergoes organization.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

Meeting Dec. 21, 1903, Dr. W. T. Councilman in the chair.

Dr. R. W. Lovett read a paper on

FORCIBLE CORRECTION IN LATERAL CURVATURE OF THE SPINE.

Dr. E. H. Bradford: The orthopedic surgeons of this community are indebted to Dr. Lovett for this paper and for the energetic investigation which he has been conducting on the subject of lateral curvature. As is well known this subject in surgery has been neglected much more than its importance deserves, and until comparatively recently the treatment of this common deformity has been placed largely in the hands of gymnasts and massage manipulators. Even the pathology was not well understood and methods of treatment were developed and practiced, although based upon faulty pathology, to the discomfort of many patients and with but little benefit to those who were obliged to undergo a long-continued treatment. One of the most striking instances of surgical error I had an opportunity to observe not many years ago in one of the English hospitals where a child was shown, at one of the clinics, who had been treated recumbent in bed for two years on a spinal couch for lateral curvature which, if left alone, would have been but little if at all worse than was the condition at the end of this long period robbed from the child's girlhood. Fortunately this former condition of pathological ignorance has been supplanted by more accurate knowledge of the nature of this deformity, and as the result of better knowledge of the subject more rational theories of treatment have been adopted and are now in vogue.

It is important to distinguish between cases of true scoliosis and simply faulty attitudes owing to muscular weakness. The latter can of course be left to gymnasium directors, but where an alteration in the bone or ligaments has already taken place and true scoliosis has been developed, the condition requires the attention of experts. Methods of treatment which are at present in vogue consist of, first, gymnastics thoroughly carried out. A useful adaptation of this has been brought, within a few years, to the attention of the profession in a thorough manner by Dr. Teschner of New York. Second, the method of ligamentous stretching. Where the ligamentous and muscular contractures are too great to be overcome by any gymnastic method and demand stretching, this method is necessary. This has been brought to a valuable degree of usefulness by several Continental surgeons, notably Schulthess of Zurich. The third treatment is that of forcible correction, brought prominently before the profession by several German surgeons, and lately by Wullstein. Quite recently Dr. Hoke of Atlanta has employed operative measures with osteotomy of the distorted ribs which promises to extend the possibilities of successful treatment to cases hitherto regarded as beyond benefit. It is in following in these lines and in improvement of these methods that this distressing deformity can be made curable.

Dr. Lovett's investigations will be much appreciated by his orthopedic colleagues in this community.

Dr. C. F. Painter: I am particularly interested in this apparatus of Dr. Lovett's, as we have been attempting some forcible corrections at the Carney Clinic, following the methods suggested by Wullstein. The apparatus in use there is like his in principle, differing only in the amount of force which can be used. Our cases have not been put up with the helmet attachment to the jacket, which, of course, lays our failure to secure the results which Wullstein claims open to criticism. Though we have succeeded in obtaining considerable correction in some of our cases, it has not been more than could be secured by a good deal less rigorous methods, and has not been maintained. I think the theory upon which Wullstein worked is erroneous, and that he could not reasonably expect to correct a deformity which is fixed, so far as the hardening of the bones is concerned, at the time the cases of bad scoliosis came for treatment, by the same method which he has found would produce these bony changes in a growing puppy.

There are two serious obstacles to the forcible correction of scoliosis; one is that a certain number of cases behave very badly under the fixation of the chest with plaster jackets; in the second place it is not reasonable to suppose that anything can be accomplished by simply lessening the lateral deviation of the column unless the muscles can be strengthened to hold any possible correction secured. It seems unreasonable to secure this muscular strengthening of the short muscles on the concavity of the curve or the stretched muscles on the convexity, unless opportunity is offered for their functional use immediately.

For these reasons forcible correction seems to me reasonable only when used intermittently with jackets and combined with gymnastic work from the start. I should, therefore, regard any method of correction in jackets as simply another resource which we have at our disposal for the limbering up of scoliotics. I believe that this is better accomplished by hyperextension of the spine and application of the jacket in that position than by applying the retention apparatus in a

flexed position. All methods which tend to help in the solution of some of the complicated problems of lateral curvature should be welcomed, for the more devices one is master of, the greater success must attend the treatment of these most distressing deformities.

NEW YORK NEUROLOGICAL SOCIETY.

STATED MEETING Jan. 5, 1904.

PEARCE BAILEY, M.D., President.

PTOSIS RELIEVED BY OPERATION.

DR. B. SACHS presented a young man who had been under his observation for a number of years. He had been apparently well until about ten years ago, when he had an apoplectiform seizure, which resulted in double ptosis and palsy of all of the ocular muscles. There was some recovery, but at the present time there was almost complete paralysis of both recti externi, and the up and down motions were still considerably restricted. The rectus externus of the left side had recovered most. The lesion was evidently in the vicinity of the aqueduct of Sylvius, involving not only the third nerve but the sixth and fourth nerves. For many years this man had had a very persistent tachycardia, and it was assumed that he had had a chronic endocarditis, and that an embolus had passed into the basilar artery. Quite recently another possibility had arisen, *i.e.*, Dr. A. Wiener had found what he considered to be a specific lesion of the fundus. Possibly, therefore, the original condition was a thrombosis resulting in considerable softening. The speaker thought that after a certain length of time, when the ordinary therapeutic procedures had failed to bring about a favorable result, it was proper to resort to surgical means for relieving the ptosis.

DR. ALFRED WIENER, supplementing Dr. Sachs' report, said that before the operation, which he had done, the left eyelid hung down to the full extent. The operation done was that known as the Hess operation. An incision was made along the brow, the skin was dissected away and three deep sutures were inserted so as to practically attach the lid to the frontalis muscle. There had been no sacrifice of tissue, and the natural folds of the lid had been preserved. There were a number of pigment spots on the periphery of the retina, a condition often found in young children suffering from hereditary syphilis. It was extremely probable, therefore, that this man was suffering from hereditary syphilis.

DR. W. M. LESZYNSKY said that if the man had a ptosis and a paralysis of the third nerve, and the operation were done, and there was diplopia, the resulting condition would be worse than before the operation.

DR. SACHS said that he had intended to emphasize the point that if there were a diplopia, other ocular muscles should be cut hereafter and a proper equilibrium of the muscles restored. He had had this done in a number of stubborn syphilitic cases, at the suggestion of an ophthalmologist, and the results had been very satisfactory. He would, therefore, recommend the operation not only in ptosis, but in any ocular palsy of long standing.

POST-DIPHTHERITIC HEMIPLEGIA, PROBABLY OF NEURAL ORIGIN.

DR. JOSEPH COLLINS presented a boy of nine years with paralysis and contracture of the left hand and foot. He had first seen the patient at the request of a surgeon, who suspected a tumor of the cortical motor area. The history was that, two and a half years ago, the child had a severe attack of diphtheria, for which antitoxin was administered on the fourth day. A week later the child was very weak, and his hands, feet and face were swollen. About three weeks after the onset of the disease he began to walk, and then it was noticed that the left foot dragged. A day or two later the left hand was observed to be weak. A week or so after that the left angle of the mouth was seen to be drawn up. Oftentimes on attempting to swallow fluids, they regurgitated through the nose. The mother did not recall the boy's having had choking spells on swallowing. Between two and three months after the onset of the paralysis the hand and forearm began to flex and the hand to abduct, so that the elbow stood out from the body further than the shoulder. The hand became tightly clutched and gradually drew up until it was held behind the head. This condition lasted about a year. During this time the endeavor was made to overcome this position of the hand by making him carry a weight in it and by using a Whitely exerciser. About eighteen months after the onset of the paralysis the face became straight, but the condition of the foot remained such that when he attempted to put on a shoe he had to wait until the toes became extended, and if the shoe were not slipped immediately at that moment he might have to wait half an hour before the flexor contraction or spasm would again relax. He never complained of pain. He attended school during this time, and was always bright in his studies. On admission to the Hospital for Ruptured and Crippled on Oct. 23, 1902, he walked with a limp on the left side, the foot being held in position of marked equinus and slight varus; the left hand was held rigid, with the fingers extended, and the posterior muscles of the leg were in rigid contraction. The toes were flexed. The equinus could be overcome by force. There was slight atrophy of the muscles of the leg, but no paralysis. The left hand was in overextension, but there was no barrier to flexion. On Oct. 28, the astragalo-scaphoid articulation was exposed, and a wedge of bone and cartilage was taken from the adjacent surfaces. The flexor longus hallucis was exposed and cut, the proximal end was drawn down and passed through the scaphoid and sutured to itself and adjacent periosteum. The anterior tibial was cut and shortened, and a tenotomy of the tendon Achilles was made. The foot was put up in valgus position in plaster of Paris. On Nov. 15, 1902, the hand was put up in plaster in a flexed position. On Dec. 13, 1902, when the plaster was removed from the hand, there was marked flexion with slight flexion of the fingers. On Jan. 21, 1903, it was noted that the hand was in extreme flexion. At present, the boy was apparently healthy and well except for the deformity of his left extremities. His ability to walk, run and jump was limited only by the flexed position of the foot. He stood on either foot equally well. There was no paralysis of the muscles of the hip. The fingers, hand, forearm and arm were in a state of flexion, and the fingers and hand inclined to extreme flexion. This contracture could be overcome by the examiner. The knee jerks were present on both sides and equal. There was no tenderness on pressure over the nerves, nor were there any sensory disturbances. There was no atrophy. There was partial reaction of degeneration in the muscles and nerves of the extensors of the forearm and foot and of the peroneal muscles. There was none of the stigmata of hysteria unless the contracture might be considered such. The case was diagnosticated as one of post-diphtheritic neuritis resulting in contracture and faulty attitude simulating hemiplegia. That there might be an hysterical element in it the speaker did not deny.

DR. JOSEPH FRAENKEL called attention to the curious and irregular behavior of the symptoms, and

the absence of organic phenomena. The change in electrical reaction might be explained by the clonic state of the muscles. He was inclined to believe that this was a functional disorder.

Dr. Leszynsky said he had carefully examined this boy previously. According to the history that he had obtained, this peculiar attitude took place very rapidly. He had been impressed with the fact that, on entering the hospital, there was complete extension of the wrist and hand, and that after the hand had been placed in forcible flexion it had remained in that attitude, whereas formerly it had been in extension. He could find no evidence of involvement of the motor tract. He was inclined to look upon the case as of functional origin. According to the history, the extension took place quite early.

Dr. Sachs said that from a very large experience that he had had with infantile cerebral palsy he would not hesitate at all to say that this was a case of that kind. He pointed out that infantile cerebral palsy did occur after diphtheria. The boy had a hemiplegia which was entirely typical, and there were contractures just as in other cases of hemiplegia. There were athetoid movements of a most pronounced character. If, with the eyes closed, the boy was asked to grasp one's hand firmly with the well hand, the affected hand would at once go into the athetoid position. He could not recall having ever seen this condition in hysteria or neuritis. The leg had recovered very much more than the arm. He would not deny the possibility also of a neuritis, but the infantile palsy was a primary condition. He could not believe that any neuritis would give rise to the condition found in the leg. He would like to know if any one present had ever seen athetoid movements with peripheral neuritis. There was probably a post-diphtheritic encephalitis as the original cause.

Dr. C. L. Dana said he was very glad indeed to hear this positive opinion expressed because he had arrived at the same conclusion from a rather hasty examination of the child. To him a condition very characteristic of the cerebral hemiplegia was present in the face.

Dr. Pearce Bailey said that the history of the case did not point very distinctly to a post-diphtheritic paresis, and such a distinctly hemiplegic character would be unusual for a neuritis. The weight of evidence seemed to point to a post-diphtheritic cerebral hemiplegia.

Dr. Collins said he did not know of any hemiplegia of organic origin that entirely spared the upper part of one extremity. There was some involvement of the face and an inability to wink with the left eye, but a large number of people were unable to wink with one or the other eye who had never had hemiplegia. The fact that one hand underwent extension while the other clutched did not seem to him to have any significance, because he had frequently tried this in persons who had no hemiplegia.

TWO CASES OF CONGENITAL CYST OF THE FOURTH VENTRICLE ASSOCIATED WITH BRAIN TUMOR.

Dr. J. Ramsay Hunt reported these cases, presenting photographs and specimens. He said that both cases were examples of brain tumor in young subjects, occupying the left optic thalamus and the right crus cerebri respectively. In addition, the fourth ventricle in both cases contained a large cyst, primarily attached to its floor, penetrating into the substance of the pons, coursing through its structures and terminating in immediate structural relation with the tumor. The clinical course of the disease in both cases was typical of brain tumor, and permitted the correct localization of the growth. Antedating the symptoms of brain tumor no certain history of central symptoms or mental defect was obtainable. In the second case the patient was said to have been subject to headaches with attacks of vertigo and nausea. The first patient was a boy of seven, who developed general symptoms of brain tumor with right hemiparesis and right hemiataxia. There was paralysis of the right side of the face with paresis of the left external rectus and with nystagmus. Hearing was impaired on the right. The second patient was a boy of seventeen who, six weeks after a fall on the occiput, developed the general and focal symptoms of brain tumor in the right crus cerebri. Weber's syndrome was present. On exposing the fourth ventricle, at the autopsy, a large cyst was found there in both cases, firmly attached to the floor of this ventricle. By serial sections he had demonstrated that in both cases the cyst dipped down in the pons, coursed forward and was in immediate structural relation with the tumor in both cases. There was nothing in the walls of these cysts to suggest a parasitic origin, while there was much to point to a congenital origin. The frequency of glioma in this locality was well known. The coexistence of a tumor formation still further supported the view already expressed. These cases were unique in his pathological experience, and he had been unable to find their counterpart in the literature.

A CASE OF PRIMARY SCLEROSIS OF THE POSTERIOR COLUMNS FOLLOWED BY A DISSEMINATED SOFTENING OF THE OTHER WHITE COLUMNS.

Dr. Joseph Collins presented this report. The clinical picture, he said, was so typical that the diagnosis was made during life. The patient was a housepainter, forty-two years of age, whose only previous illness had been severe attacks of colic. There was no history of syphilis, gonorrhea or the excessive use of alcohol. In 1900 he began to complain of trembling and stiffness of the hands, associated with intense paresthesia. Later on, there was pain in the back. During the following year his principal complaints were manual paresthesia and general weakness. There was no desire for sexual intercourse. All this time he was under treatment for chronic lead poisoning. In January, 1902, he rapidly became paraplegic, and since then had been bedridden. He was admitted to the City Hospital in March, 1902, and when first examined by Dr. Collins, on April 11, the man appeared to be suffering from Bright's disease. He could move the lower extremities slowly; there were knee jerks present on both sides. The Babinsky reflex could also be elicited on both sides. Tactile sensibility was impaired over the lower extremities. Thermal sensibility was preserved, but was slow below the knee. Pain sensibility was preserved. Deep sensibility was lost. There was prompt response to the faradic current. The pupils were equal and responsive. Bed sores were developing over the sacrum. The blood examination showed a predominence of small mononuclear cells and there was only 65% of hemoglobin. On April 27, it was noted that there was complete flaccid paraplegia; the left lower extremity was edematous; there was incontinence of urine and feces. He refused to take food up to the time of his death. The autopsy was made twenty-four hours after death. The brain and spinal cord were prepared in the usual way, and showed two distinct sets of lesions, sclerosis and softening. The areas of softening appeared to be very recent. In general, they involved the columns of Burdock, the posterolateral portions of the crossed pyramidal tract

and the cerebellar tract. The oblongata, pons and motor cortex were normal. The sclerosis appeared to be a primary one following pretty closely the system of fibers in Goll's tract. No thrombi or pathological changes of the blood vessels were found, and the blood examination showed this fluid to be fairly normal. The genesis of the softening was still obscure.

DR. C. L. DANA said that this description followed closely those of cases of combined degeneration of the spinal cord with terminal softening. He did not quite understand whether the reporter put his case in this group, yet, to his mind, the case corresponded very closely with typical cases of that kind, a considerable number of which it had been his fortune to observe. Sometimes these cases were associated with a pernicious anemia; sometimes there was a severe primary anemia, while at other times there was no anemia at all. It was unfortunate that neurologists had not as yet agreed upon a name for this affection. The most common name was combined degeneration of the spinal cord associated with toxic states. The pathological conditions reported in this paper were very similar to those already reported. It was only in the minority of cases that there were areas of terminal softening. He was not prepared to admit that there were two distinct processes going on in the spinal cord. The disease began slowly, affecting by preference spots in the posterior columns, and subsequently the lateral columns. If the patient's condition were bad at this time, an acute process developed, but probably essentially of the same nature. The etiology of the toxic condition was as yet unfortunately involved in obscurity.

DR. COLLINS said that his case was reported as one of primary sclerosis of the columns of Goll with secondary softening in the other white columns, the paper being entitled, "A Study of Subacute Sclerosis of the Spinal Cord of Toxic Origin." His case differed materially from those reported by Drs. Dana and Putnam in that the sclerosis was sharply and completely limited to the columns of Goll. In the other cases the sclerosis predominated in the posterior columns and in the crossed pyramidal tract, and this accorded in the main with the clinical history. The fact that his patient had suffered severely from lead poisoning and had subsequently developed a cachexia seemed to throw a little light on the etiology.

LYMPHOCYTOSIS OF THE CEREBROSPINAL FLUID.

DR. JOSEPH FRAENKEL read a paper on this topic. He said that he had endeavored to study this subject in 47 cases, but in 14 of these the tappings had failed to give any cerebrospinal fluid. There were seven cases of tabes, all of long duration, and all of these cases showed marked increase of lymphocytosis. Six out of the seven cases of multiple sclerosis showed lymphocytosis. The tapping was done upon the patient in the sitting posture, preferably between the third and fourth lumbar vertebræ, or at the level of the iliac crests. From 5 to 8 cc. of the fluid were collected for each examination, and then dentrifuged. The tappings were made under chloride of ethyl spray. In some of the cases headache and nausea followed lumbar puncture, but they were usually overcome by saline injections.

DR. SACHS said that in the two cases in which lumbar puncture had been tried by him in order to distinguish between pseudotabes and tabes the examination proved entirely negative and of no diagnostic value. Hitherto the reports on this subject had been discouraging because of their contradictions. Lumbar puncture should never be attempted whenever there was a possibility of the existence of a cerebellar neoplasm, as several instances of sudden death following this procedure in such cases had been reported.

DR. DANA said he had made lumbar puncture now in 26 cases, 21 of which were successful. About 12 of these cases were cases of paresis in which it was desired to receive some diagnostic aid. In two the fluid was clear; in others there was a lymphocytosis. He had found the procedure helpful in diagnosticating certain acute cases coming into the insane pavilion. The procedure was easy after a little practice, and could be done almost painlessly by using 30 minims of ½% solution of cocaine injected ten minutes before the tapping. The procedure had proved helpful in one or two cases of spinal trouble. He believed it was not only of value in diagnosis but that it would prove useful in time in therapeutics. Lumbar puncture almost always caused headache or vertigo for a day or two, sometimes for a week, and often it was very distressing. He believed this could be avoided by removing only 4 cc. of the fluid, a quantity sufficient for diagnostic purposes.

DELIRIUM GRAVE; A CRITICAL STUDY, WITH REPORT OF A CASE WITH AUTOPSY.

DR. W. B. PRITCHARD presented this paper. He said that all authors agreed that the disease was very uncommon and most writers agreed that it was chiefly found among women. The immediate exciting causes were apparently numerous and various. Typhus and typhoid fever, or other prolonged infections, might be followed by delirium grave. The clinical picture was quite distinct and constant. Following a sudden or prolonged strain, the patient developed a maniacal condition with violence and incoherence. Hallucinations and delusions appeared, usually related to the visual sense, and the temperature was usually raised from one to five degrees above the normal. Again and again transient remissions might occur, but they became less and less complete and less frequent. Emaciation was sometimes rapid, followed by exhaustion, coma and death in a short time. At least two fundamentally different diseased conditions had been confused — one obviously organic, inflammatory and due to toxins or trauma; the other giving chiefly negative pathological findings. He would suggest the use of the term "delirium grave" for this group, and the application of the terms "pseudo-delirium grave" or "acute febrile delirium" to the first group. Many cases of meningitis and of toxic encephalitis had been reported as delirium grave. In ordinary acute mania there was not the same tendency to rapid and fatal collapse, and the hallucinations and delusions were more systematized. The disease was of extremely grave prognosis, nearly all cases terminating fatally. Death usually occurred from exhaustion; those who escaped death passed into a condition of dementia. The case reported occurred in a woman of forty-three, who had been subject to many and severe nervous strains. On Dec. 12 she suddenly developed the most violent mania. The delirium and mania were only temporarily controlled by drugs, and she died on the sixteenth day. A noticeable peculiarity was an almost continuous expectoration. Incontinence of urine and feces developed a few days before death. The autopsy was made four hours after death by Drs. McPhee and Larkin. Sections were made from all the regions of the brain. No changes in the blood vessels were noted; the chief changes were eccentricity of the nuclei with ragged cell outlines and loss of chromatic bodies. In the cerebellum, Perkins' cells were mere

shadows. These lesions had been found in a great many other conditions.

Dr. Adolf Meyer was of the opinion that acute delirium grave had, among alienists, much the same position that Landry's paralysis had among certain affections of the spinal cord. The delirium under discussion was uniform and unmistakable in that it could not be analyzed owing to the excited condition of the patient. He had not yet met with a single case in which there had been reason to doubt the diagnosis of delirium grave. In some of these meningitis had only been discovered by microscopical examination; in others, pneumonia or some other condition had spoiled the purity of the clinical picture. He thought the majority of alienists took a somewhat different position from Dr. Spitzka on this subject, believing it to be a peracute phase, but not a clinical entity.

Dr. Pritchard said that the object of his paper was to endeavor, if possible, to clear up the subject by separating the cases of meningitis, pneumonia and the like from true delirium grave, and emphasizing this differentiation by reporting a striking case coming under his own observation. He was of the opinion that the vast majority of alienists of to-day did recognize delirium grave as a clinical entity, although of obscure etiology.

Recent Literature.

The Medical Annals of Maryland. 1799–1899. Prepared for the centennial of the Medical and Chirurgical Faculty. By Eugene Fauntleroy Cordell, M.D. Illustrated. Baltimore. 1903.

This volume of nearly 900 pages is the result of a plan adopted by the Medical and Chirurgical Faculty of Maryland in 1898 for the proper celebration and commemoration of the centennial of the faculty. The work is arranged in three divisions, — an historical section, a biographical section and a chronological section. The first, as its name implies, deals with the work of the society during the century of its existence; the second gives the names and a brief record, when obtainable, of about 2,400 persons who have been members of the society. In spite of every effort small information was obtainable of many of the 101 charter members, a matter, naturally, of regret. The third part, making use largely of the historical researches of the late Dr. John R. Quinan, is concerned with matters of chronological interest. The editor of the volume has been assisted in his work by the following committee: Drs. William Osler, Thomas A. Ashby, Harry Friedenwald, Henry M. Hurd and George J. Preston.

The volume is a worthy commemoration of the event it is designed to celebrate, and contains a large amount of information which should prove of vital interest to the student of the medical history of Maryland which is epitomized in the hundred years which the book covers. It is admirably printed and bears evidence of the assiduity of the editor and his collaborators. A number of half-tone reproductions of distinguished men and other illustrations of general interest embellish the volume.

High Frequency Currents in the Treatment of Some Diseases. By Chisholm Williams, F.R.C.S. (Edin.) 8vo. pp. xvi, 222. With 75 illustrations. London: Rebman, Limited. 1903.

The use of electrical currents of high frequency and high potential is increasing and the value of such currents in therapeutics seems to be acknowledged, especially in the treatment of tuberculosis and certain skin diseases. The volume before us gives a somewhat full account of the various forms of apparatus required, and the methods of using them, with the results of treatment in various cases. The author unfortunately presupposes a considerable knowledge of electricity on the part of the reader, so that the book is hardly adapted for one beginning the study of high-frequency currents.

Organic Nervous Diseases. By M. Allen Starr, M.D., Ph.D., LL.D. 8vo. pp. viii, 751. Illustrated with 275 engravings in the text and 26 plates in colors and monochrome. New York and Philadelphia: Lea Brothers & Co. 1903.

"It is now possible," says the author in his preface, "to trace any symptom presented by a patient to some disturbance of function in a definite nerve center or nerve tract." While this is certainly the goal of our diagnostic efforts, our knowledge is still far too inadequate to attain unto it, and the present volume by no means extends our knowledge far enough to warrant the claims of the preface. The very title of the book is a reversal toward doctrines that are obsolescent, since one aim of modern neurology is to remove the taint of ignorance implied by the word functional and establish a definite pathology of the "functional" disorders. The book itself is a treatise upon nervous diseases, laying somewhat particular emphasis upon localization and upon surgical treatment, and omitting any consideration of that large class of nervous diseases which were once called "functional," except the various forms of neuralgia. Within these limitations the work is of uneven merit. The author's skill in a clear and simple presentation of the essential facts of a subject is well known, and that is, of course, manifested in the present volume, his presentation being enriched with the results of his own large clinical experience and by many excellent diagrams and illustrations. Some of the chapters are clear, accurate and an excellent presentation of the latest doctrines upon the subjects of which they treat. Others are thoroughly banal, defective and far behind our present knowledge. They read as if they had been written five or six years ago and published without revision. In addition, there are many statements which are either inaccurate or far too positive, and show a lack of care and a failure to note recent investigations. In spite of these grave faults the work contains much of great value and it will in many ways prove helpful to the neurologist, although it is of too uneven merit and too incomplete to place in the hands of the student.

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DUSTY STREETS.

THE complaint periodically heard in this community of the unhygienic condition of streets finds its echo in London, and we have no doubt, if investigation were carried further, it would be found that all cities exposed to wind and dirty streets would be found in a similar plight. At a recent meeting of the Sanitary Institute of Great Britain, alluded to in the *Lancet*, the evening was devoted to a discussion of the relation of streets and thoroughfares to public health in the hope that vast municipal schemes might temporarily be subordinated to the humble duty of effective scavenging.

Apparently the most important paper read at this meeting was by Dr. L. C. Parkes, medical officer of health of Chelsea, who discourses upon the compound known either as London mud or London dust according to its condition of moisture. He dwelt upon the perfectly familiar facts that such material in pulverized form is of necessity a source of irritation to the bronchial mucous membranes, and that, difficult as it may be to trace special diseases to this flying dust as a source, nevertheless, the fact cannot be doubted that such material must be capable of doing positive harm. Apart from the actual production of disease, the general discomfort and damage to property should receive consideration. Dr. Parkes, for example, notes the fact that attempts to exclude dust from cases containing the more valuable books in the Library of the British Museum have met with only partial success. Microscopic examination shows this dust to be derived directly from the streets. Street dogs he regards as an "unmitigated" nuisance, and urges that restrictions be laid upon their use of highways and foot paths. He disapproves of macadamized streets, and urges that they be superseded as soon as may be by wood or asphalt which might be effectively cleansed by daily washing.

All this sounds familiar, and is certainly, as experience has shown, as applicable to us as to London. Boston has the reputation at least of being a peculiarly windy city; its experimental pavements are of great variety; its dust under proper weather conditions is always apparent. We recall a meeting held several years ago by the Boston Society for Medical Improvement analogous to the one we have just alluded to in England. The dangers and discomforts and various means of bettering the conditions were discussed at length by specially qualified speakers. The dust of the streets was magnified by a lantern projection on the screen, and everything legitimate was done to impress upon municipal authorities the importance of the entire matter. The results, however, have not been conspicuous. We still have dirty streets and the inevitable accompaniment of dust and dirt.

The continuous covering of snow during the past winter has definitely relieved the usual conditions, and no doubt has conduced to a greater degree of health in the community than would otherwise have been the case. The problem in general is clearly one for the municipal authorities to solve. In the meantime physicians should persevere in their investigation of the actual danger which lurks in the familiar dust storm. If we could prove definitely that disease of any sort is regularly induced by these conditions, municipal action could possibly be hastened. The present situation appears to be here, as in London, much discomfort and the possibility of disease.

REPORT OF PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

THE annual report of the Surgeon-General of the Public Health and Marine Hospital Service of the United States for the year 1902 is before us. We have previously noted the reforms and consequent increased efficiency of this branch of the public service. Surgeon-General Wyman finds much cause for the belief that the possibilities of increased usefulness under the act of July 1, 1902, will be manifest in the immediate future.

The foundation provided by Congress during the past year makes possible the development of the service in a measure hitherto impossible. He also feels that now an influence for the public welfare is offered far beyond any opportunity of a like character that has been presented in the history of the country.

At the end of the fiscal year under consideration the commissioned corps of the service numbered 105 commissioned officers, including the surgeon-general, 29 surgeons, 27 passed assistant surgeons and 48 assistant surgeons. Officers presenting themselves for examination for promotion were uniformly successful. New hospitals are being established at New York, Buffalo, Pittsburg and Savannah, and measures have been taken toward selecting sites and erecting suitable buildings.

Regarding the diseases which came under the observation of the Marine Hospital Service, it appears that no case of yellow fever occurred in the United States during the year. In San Francisco 39 cases of plague were reported with but one death. Smallpox had occurred in 44 states and territories to the number of upwards of 50,000, with nearly 2,000 deaths, the mortality being 3.31%. A commission appointed to investigate the origin and prevalence of leprosy in the United States reported as follows: That there were present in the United States 278 cases of the disease, probably an incomplete census because of the impossibility of discovering all cases. Of the cases observed 145 were born in the United States, 120 in foreign countries, and the birthplace of the remainder was unknown. Twenty-one states and territories are known to contain lepers. As a result of this investigation, the commission recommends the establishment of at least one national hospital for leprosy, to be maintained under the supervision of the general government. Under present conditions of improved hygiene and knowledge of the nature of the disease these figures cannot be regarded as in the least menacing. Isolation is, however, undoubtedly a wise precaution. On the scientific side, the various researches have been undertaken on the general question of the etiology of yellow fever and on various matters of hygienic importance.

The greater part of the report, as usual, is taken up with contributions of a clinical or laboratory character from the various division officers located in different parts of the world. Numerous illustrations of interest, illustrative of quarantine or sanatorium construction, are inserted in the text; in general, we find the report stimulating and indicative of the increasingly thorough work of scientific value which is being carried on by the Marine Hospital Service.

INTERSCHOLASTIC SPORTS.

The Indoor Interscholastic Athletic Meeting, under the auspices of the Boston Athletic Association, took place on Saturday, March 19, at the Mechanics Building on Huntington Avenue. It served to emphasize the statements made in these columns a few weeks ago (Feb. 11) in relation to schoolboy athletics.

Before the contests a meeting of the officers of the association was held, at which many of the contestants were present. This meeting was addressed by the managers of the Harvard and Yale Track Teams, and also by Mr. Clark of the Boston School Committee. The last speaker dwelt on the possible dangers of Interscholastic Athletics as viewed from the standpoint of a practical athlete. In the main his views coincided with those already expressed in these columns.

It seems to be a fact that the large majority of schools sending teams to these contests do not have any routine medical examination, and that the boys are subject to the direct and absolute authority of a professional or semi-professional trainer. The boys are allowed to compete in several events, and at times are encouraged to do so. The amount and severity of the training depends entirely upon the judgment of the professional coach. The frequent disappointment in the performance of individuals, of whom much had been expected in certain events, expressed at times in no uncertain terms, is only too often due to overtraining which is entirely the fault of the coach. And the reputation of the coach is usually a matter of more concern than the welfare of the boys.

Another thought suggested by this school meeting is the advisability of giving up the mile run at the indoor meeting. The dust, the poor ventilation, the hard and crowded track and the sharp corners are all arguments against the indoor mile. The outdoor mile is sufficiently severe for schoolboys and it should be limited to the strongest and most mature students; but, at least, it is run in the open air and on a wide four-lap cinder track.

It is certainly time to supervise school athletics more closely. The possibilities of injury are many, and the manifestations of overwork

or overexertion may not be apparent for months or even years. If present conditions continue, they will inevitably bring discredit upon the interscholastic games.

MEDICAL NOTES.

A CANTATA DEDICATED TO DR. WELCH. —At a concert of the Washington Sængerbund, held March 20, a cantata, "Hymne an Hygiea," composed and orchestrated by Dr. John C. Hemmeter of Baltimore and dedicated to Dr. William H. Welch, was given.

POSTPONEMENT OF HENRY PHIPPS INSTITUTE LECTURE. — It is announced that a cable from Professor Maragliano states that through illness he will be unable to give his lecture under the auspices of the Phipps Institute scheduled for March 28. It has, therefore, been indefinitely postponed. The Henry Phipps Institute will entertain at dinner on Monday, the 28th inst., the delegates who have been called to meet in Philadelphia to consider the question of a National League against Tuberculosis, and the holding of an American Congress against Tuberculosis. Dr. F. L. Flick will give a luncheon to the delegates on the same day just before the meeting, which has been called for 3.30 o'clock. At this meeting an abstract from Professor Maragliano's paper will be read.

LEPROSY IN NEW SOUTH WALES. — In a report of the Board of Health of New South Wales for the year 1901, rendered the end of December, 1903, there appears the following summary in regard to leprosy: The total number of persons admitted since 1883, when patients first began to be received (though the notification of leprosy was first made compulsory and the detention of lepers provided for by law only towards the end of 1890), is 78. Distributed under nationalities, the account stands as follows: Natives of New South Wales, 21, of whom 15 have died and 1 was released; of Queensland, 1, deceased; of England, 4, of whom 2 have died; of Ireland, 2, deceased; of New Zealand, 1, deceased; of Fiji, 1, deceased; of Germany, 2, of whom 1 has died; of Belgium, 1, deceased; of the United States of America, 1; and all of these were whites, of European descent. There were also 37 natives of China, of whom 12 have died and 21 have been returned to their own country; of India, 2, deceased; of the West Indies, 1, discharged in 1885; of Java, 1; of Tanna (New Hebrides), 1, deceased; of New Caledonia, 1, deceased; of South Sea Islands, 1; and all of these were colored people.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon March 16, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 21, typhoid fever 5, measles 157, smallpox 0.

DEATH FROM ANTHRAX. — It is reported that a morocco workman in Lynn has recently died from anthrax, presumably contracted from the handling of South American goat skins.

BOSTON MORTALITY REPORT. — The number of deaths reported to the Board of Health for the week ending March 19 was 253, as against 225 the corresponding week last year, showing an increase of 28 deaths and making the death-rate for the week 21.87. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 47 cases, 7 deaths; scarlatina, 25 cases, no deaths; typhoid fever, 6 cases, 3 deaths; measles, 191 cases, 9 deaths; tuberculosis, 44 cases, 30 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 48, whooping-cough 1, heart disease 18, bronchitis 5, marasmus 2. There were 4 deaths from violent causes. The number of children who died under one year was 47, under five years 67, persons more than sixty years 52, deaths in public institutions 82.

BEQUESTS TO HOSPITALS. — By the will of the late William Litchfield of Lexington, Mass., the following institutions in and about Boston, among many others, are beneficiaries: Kindergarten for the Blind, Jamaica Plain, $5,000; Boston Lying-in Hospital, $3,000; Home for Aged Men, $5,000; Children's Hospital, $5,000; Cullis Consumptives' Home, $5,000; New England Hospital for Women and Children, $3,000; Washingtonian Home, $5,000; Home for Aged Couples, $5,000; Massachusetts General Hospital, $5,000, income for free beds; Massachusetts Homeopathic Hospital, $5,000, income also for free beds. The Perkins Institute and Massachusetts School for the Blind receives property in Charlestown. The Kindergarten for the Blind, Jamaica Plain, is also made residuary legatee of certain property in West Somerville

NEW YORK.

BEQUESTS TO HOSPITALS. — Among the charitable bequests of the late Elizabeth Y. Wright of Glen Cove, Long Island, N. Y., is $5,000 to the Nassau Hospital at Mineola, Long Island.

ELSBERG CORONERS' BILL. — On March 7, by a vote of 28 to 13, the State Senate passed the

Elsberg Coroners' Bill. The measure abolishes the office of coroner in the city of New York at the expiration of the terms of the present coroners and authorizes the establishment by the Board of Health of a Bureau of Medical Examiners, with a chief examiner and assistants.

Bequest to Seney Hospital. — By the will of the late Smith Lafayette Russell $5,000 is left, as a trust fund, to the Seney Methodist Episcopal Hospital in Brooklyn.

Pneumonia in Rochester. — The Health Department of Rochester, N. Y., has ordered that physicians shall report all cases of pneumonia occurring in their practice, thus placing it in the class of infectious diseases. A map of the city is to be kept at the office of the department, on which the location of the cases will be designated, and notes will be made of the sanitary conditions accompanying them.

New Buildings of Mount Sinai Hospital. — The fine new buildings of the Mount Sinai Hospital, occupying the block extending from Fifth to Madison Avenue and from 100th to 101st Street, were thrown open to inspection on March 15. They are ten in number, all of them, with the exception of an isolation house, connected by corridors on the ground floor. The institution is very completely equipped in all its departments, and will comfortably accommodate 450 patients in the wards, in addition to 52 in the private pavilion. On the Fifth Avenue side it faces the upper part of Central Park.

"Privileged Medical Testimony." — On March 15 the Court of Appeals, at Albany, handed down a decision (in which only a bare majority of the court concurred) in favor of the plaintiff in an action by Henrietta Meyer of New York against the Supreme Lodge, Knights of Pythias. This decision involves the question of "privileged testimony," and the point at issue was whether the testimony of a physician who declared that the plaintiff's husband, Emanuel Meyer, committed suicide, should be excluded. According to the terms of the benefit certificate held by Meyer, a recovery for death was not allowed in case of suicide. The Court of Appeals agrees with the lower courts in deciding that the physician's testimony could not be accepted as evidence, and this allows the plaintiff to recover. On the trial she succeeded in having such testimony excluded. The defendant raised the point that the section under which the trial court made its decision was not applicable in the case, inasmuch as the Knights of Pythias is not a New York corporation, but a Federal corporation. The courts, however, decided that the laws of the state were applicable to the contract between it and Meyer, notwithstanding the fact that the defendant's headquarters were in Illinois.

Vital Statistics for 1903. — The official vital statistics of the city for the year 1903 have just been issued by the Health Department. The total number of deaths was 67,864, and of reported births, 94,755. The number of deaths in infants under one year was 14,402, and in children under five years, 22,044. The annual death-rate in the city was 18.18. The lowest rate was in the Borough of Queens, 14.65, and in the other boroughs it was as follows: Richmond (Staten Island), 16.93; Brooklyn, 17.18; the Bronx, 17.75; Manhattan, 19.30. The diseases causing the largest number of deaths were the following: Pneumonia (6,402) and bronchopneumonia (3,312), 9,714; pulmonary tuberculosis, 8,019; Bright's disease and nephritis, 5,636; organic diseases of the heart, 4,771; diarrhea and enteritis (under two years of age), 4,439; congenital debility and malformations, 3,657; cancer and other malignant tumors, 2,609; congestion, hemorrhage and softening of the brain, 2,573; diphtheria and croup, 2,190. From other infectious diseases the mortality was as follows: Scarlet fever, 734; typhoid fever, 653; measles, 508; influenza, 418; whooping-cough, 324; smallpox, 5. The following is the number of cases of tuberculosis and of contagious diseases reported: Tuberculosis, 15,214; diphtheria and croup, 18,317; measles, 13,689; scarlet fever, 10,887; typhoid fever, 3,671; smallpox, 43. In addition, the following cases of contagious disease were reported from quarantine: Measles, 334; scarlet fever, 52; smallpox, 24; diphtheria and croup, 10.

Decision regarding Appropriation for Hospital Patients. — Justice Hatch, in writing the opinion of the Appellate Court, now says that the city since 1898 has appropriated 60 cents a day for each hospital patient, but the constitution provides that the money shall not be paid unless the hospital complies with the rules of the State Board of Charities. The grant, he holds, does not devote the land to the use of the corporation for its corporate purposes, but in effect gives it to be sold for the purpose of creating a fund operating as an endowment, over which neither the city nor the Board of Charities has control. "Nor does any case, so far as we

have been able to find," the opinion continues, "support such a grant. On the contrary, the expression of the courts on this subject is to the effect that all appropriations must be subject to control of the State Board of Charities, and such is the constitutional provision. To sustain these grants, therefore, would be again to open the door to the evils which arose prior to the constitutional prohibitions upon the Legislature which were passed to remedy such evil. We reach the conclusion, therefore, that these grants are in all respect gifts and endowments, and that as such they are violations of the constitutional provision of the state."

Miscellany.

UNUSUAL COURSES, UNIVERSITY OF CALIFORNIA.

AT the next summer session of the University of California, which will be held in Berkeley for the six weeks beginning June 27 and ending Aug. 6, a number of European scientists will be on its teaching faculty. Prof. Svante A. Arrhenius, the physical chemist of the University of Stockholm, will give in English a course of lectures on the application of physical chemistry to serumtherapy, in which he will make public his most recent and hitherto unpublished conclusions. Professor Arrhenius will give another course upon the general subject of physical chemistry.

Sir William Ramsay of London is to be another member of this summer faculty, and is now preparing a course of lectures to be published later, giving his views upon the recent developments in chemical theory, dealing with the ion and the electron and illustrated experimentally by the behavior and properties of radium.

Prof. Hugo de Vries, the botanist of the University of Amsterdam, will deliver in English a course of lectures on natural plant breeding, giving his views on species and varieties and their origin by means of mutations. The lectures will be illustrated by drawings and by specimens. The following will be the sequence in which he will deal with the subject: Elementary species, constant varieties, ever-sporting varieties, mutation and fluctuation.

Correspondence.

ARRESTED TUBERCULOSIS: SUBSEQUENT HISTORIES OF CASES TREATED AT THE SHARON SANATORIUM.

BOSTON, March 17, 1904.

MR. EDITOR: Will you allow me to reply to Dr. F. T. Lord's criticism [1] of my recent article entitled "Arrested Tuberculosis. Subsequent Histories of Cases Treated at the Sharon Sanatorium from 1891 to 1902?" [2]

[1] Boston Med. & Surg. Journ., Feb. 25, 1904, pp. 224, 225.
[2] Journ. Amer. Med. Assoc., Nov. 14, 1903.

Dr. Lord has shown me the unusual courtesy of referring to me the substance of his recent letter before publishing it, and was kind enough to say that inasmuch as he thoroughly approved of sanatorium treatment and was unwilling to seem to cast a slight upon the cause, he hesitated about publishing his article. I unhesitatingly requested him to say whatever he thought right, inasmuch as the truth is what we all desire in these matters, and frank discussion is the surest way of reaching that end.

In Dr. Lord's desire for scientific accuracy of all terms, he has my most sincere sympathy. No one, I think, can possibly desire that more than myself. But in his recent article, while I am impressed by his remarks, I am very far from being convinced of the correctness of his views.

In any tabulated list of cases such as I have given, I am convinced that it is well-nigh impossible to convey to the reader the clinical picture which any one case or set of cases may have presented to the medical attendant. No one will deny, I am sure, the essential importance of the previous history and the general aspect of a patient, apart from the physical signs found, when tubercular disease is suspected.

In the cases reported as tuberculosis, although not showing bacilli in the sputa and in which the tuberculin test was not given, I have distinct and vivid pictures of them all, and while not wishing to claim infallibility in my own powers of observation, I can unhesitatingly say that they all, in my opinion, showed the distinct symptoms of latent or definite tubercular disease sufficient to make me feel practically certain of the diagnosis. It is a common experience in sanatoria and elsewhere to find patients who continue for weeks, even months, with cough and expectoration which does not contain tubercle bacilli, but which finally shows the presence of the germ. It is perfectly reasonable to suppose, therefore, that in many cases under treatment the prominent symptoms are all checked before the bacillary stage has been reached.

Dr. Lord is evidently an ardent believer in the use of tuberculin as a means of diagnosis, although he frankly admits that the only reliable proof of *pulmonary* tubercular disease is the presence of tubercle bacilli in the sputa. It may be well for me to say here that I cannot put myself in the ranks of those who believe in the free use of tuberculin. To its indiscriminate use and to the sometimes careless methods of claiming reaction when the patient has not been under the strictest supervision, I am strongly opposed. A few years ago, at a meeting of the Medical Improvement Society, I stated that up to that time I had never used tuberculin for diagnostic purposes, although earlier in my practice I had experimented with it therapeutically, only to give it up; and that although I was, perhaps, foolishly conservative, I was not wholly convinced of the wisdom of its use, nor could I conquer then a repugnance to giving it. Since then, yielding somewhat to the opinions of those in whom I had faith, I have occasionally used it in doubtful cases at Sharon and Rutland, where patients could be closely watched, simply as a means, if possible, to convince others of the results in doubtful cases. I regret to state that I have frequently found myself, in consequence of its use, more in doubt than before, and have in a few instances made mistakes in discharging patients who failed to react to the maximum dose, and who in later weeks showed symptoms of disease, cough, blood-spitting, etc. In one case 10 mgm. of tuberculin given carefully failed to cause a reaction in a patient who a few days before had shown bacilli in the sputa. A small number of cases, it may be said, but sufficient to show the possibility of grave error. It should be stated, moreover, that many patients refuse flatly to take the test, a position which adds to the embarrassment and difficulties besetting those who are attempting conscientiously to do their best for the patient, and at the same time to employ what are considered scientific methods.

As to the correctness of Dr. Lord's attitude about all cases which show after repeated examinations no tubercular but numerous grippe bacilli in the sputa, I must confess to being quite unconvinced. Opposed to the fact of Koch's statement that he believes many cases of apical

catarrh to have their origin in grippe and not in tuberculosis, we have Beck's statement that in most cases in which apical catarrh was present with symptoms of grippe, he found the tuberculin reaction to be overwhelmingly positive.[3] So we have conflicting views among men of great experience.

In Dr. Lord's excellent work, "Eleven Acute and Eighteen Chronic Cases of Influenza,"[4] I find that the tuberculin test was given apparently in only three of the chronic cases and none of them came to autopsy. It would be interesting to know the subsequent histories of these cases a few years hence; but from Dr. Lord's papers, I fail to see how they can be proved to be *non-tubercular* simply from the failure to find tubercle bacilli in the sputa while under observation, and I am strengthened in this opinion from the fact that one of our eminent pathologists states that of the chronic pulmonary cases which come to autopsy in his experience, he finds only a small percentage which are non-tubercular in origin.

Lastly, I must state that Dr. Lord's attempt to classify my cases and establish any theories upon a difference in the mortality list of those who had bacilli and those who did not, is absolutely untenable. He forgets, or the tables have not made it evident to him, that the majority of the nine who had bacilli in their sputa and who died were fairly advanced cases in whom an arrest of disease was really unexpected, and one died from another cause during operation, an eminent practitioner of this city, just before her death, having failed to find in her chest evidence of the pre-existing disease. Of the three patients who failed to show bacilli while at Sharon and who died later, one, who had also a mitral lesion, was a typical case of "galloping consumption" after she had left Sharon and had returned to a damp house; the other, with signs in both apices, died of "phthisis" undoubtedly, as stated by her physician; of the third there is no record, but from the previous history there was every evidence of a tubercular tendency, to say the least.

Even in cases of undoubtedly tubercular nature with bacilli in the sputa, we find the course of the disease as different in different subjects as black is from white, an experience which I am sure Dr. Lord must have had also.

His attempt, therefore, to suggest the possibility of a difference in prognosis in the divisions which he makes of my cases on the strength of the presence or absence of bacilli is to me quite untenable.

No one can have greater respect than myself for what bacteriology and laboratory work generally have done for medicine; but I am free to confess that I think we are now apt, too often, to lay stress upon laboratory evidence at the expense of clinical experience, and by so doing are not infrequently led astray. In this opinion I know I am not alone. One thing is certain, in more than twenty years of practice and covering the examination of consumptive cases numbering well up into the thousands, I have never yet had reason to doubt the wisdom of what was dinged into my ears from my earliest medical infancy, viz.: "If you find any change in the respiration or the percussion note in one or the other apex of the lung beyond the normal change which usually exists in the right apex, if you hear a single rale in the same position, especially if accompanied by malaise, loss of flesh, slight fever, with or without cough and expectoration, *watch your patient for he is in danger.*

Whether or not the future shall absolutely prove to us that such cases are often due to some disease other than tuberculosis, I still hold now to the belief that, clinically speaking, the result is likely to be the same to the patient, and it is of vital importance to him at least that we do not split hairs in making a diagnosis.

In conclusion, let me say that I fully appreciate Dr. Lord's excellent work and his laudable desire for scientific accuracy. I can but feel, however, that to follow out his suggestion as contained in his letter would, with our present imperfect knowledge, but add to the unfortunate confusion which to a certain extent must exist in medical nomenclature.

Respectfully yours,

VINCENT Y. BOWDITCH, M.D.

[3] Deutsche med. Woch., No. 9, p. 139, 1899.
[4] Med. & Surg. Journ., pp. 659-669, Dec. 18, 1902.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 5, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York	3,908,644	1,800	513	21.00	28.22	2.28	2.78	.45
Chicago	2,021,086	625	146	18.08	26.40	.80	4.32	2.08
Philadelphia	1,407,968	628	175	25.00	23.56	2.07	3.98	3.02
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	302	69	25.82	26.81	.99	1.65	.33
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	165	—	21.82	20.60	1.26	2.40	8.48
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	69	13	36.22	20.28	2.90	5.80	2.90
Boston	617,950	241	77	23.23	22.81	1.24	.82	2.07
Worcester	136,925	44	6	6.81	13.63	—	—	—
Fall River	119,349	43	25	22.91	29.16	2.08	6.24	2.08
Lowell	104,402	37	7	13.51	16.21	2.70	—	—
Cambridge	100,998	30	8	20.00	3.33	3.33	3.33	3.33
Lynn	73,875	24	6	4.16	—	4.16	—	—
Lawrence	72,348	27	11	14.81	25.92	3.70	3.70	—
Springfield	72,020	17	2	5.88	5.88	—	—	—
Somerville	70,413	24	9	16.67	20.83	—	—	—
New Bedford	68,863	29	9	24.13	27.58	—	—	—
Holyoke	50,538	—	—	—	—	—	—	—
Brockton	46,801	7	1	14.30	—	—	—	14.30
Newton	39,310	9	1	11.11	22.22	—	—	—
Haverhill	39,061	13	—	15.40	15.40	—	—	—
Malden	37,205	15	5	13.33	20.00	6.67	—	—
Salem	37,188	7	1	—	—	—	—	—
Chelsea	36,499	8	1	12.50	25.00	—	—	12.50
Fitchburg	36,335	9	4	33.33	—	11.11	—	—
Taunton	34,577	16	3	25.00	6.25	—	—	—
Everett	30,309	9	—	22.22	—	—	—	—
North Adams	29,201	10	2	30.00	50.00	—	—	—
Quincy	26,798	5	2	40.00	40.00	40.00	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	6	—	16.67	50.00	—	—	—
Brookline	25,576	3	—	—	50.00	—	—	—
Pittsfield	22,570	5	1	—	—	—	—	—
Medford	21,956	4	—	25.00	50.00	—	—	—
Chicopee	21,692	8	2	37.50	12.50	—	—	—
Northampton	20,314	2	0	—	—	—	—	—
Beverly	15,807	6	—	16.67	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	1	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	3	—	66.67	—	—	—	—
Newburyport	14,478	5	0	—	20.00	—	—	—
Woburn	14,315	—	—	—	—	—	—	—
Melrose	13,819	3	—	33.33	33.33	—	—	33.33
Westfield	13,809	7	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	—	—	—	—	—	—	—
Revere	13,569	2	2	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	13,324	6	—	66.67	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	4	—	—	—	—	—	—
Weymouth	11,350	3	0	66.67	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 4,289; under five years of age, 1,105; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 921, acute lung diseases 1,081, consumption 454, scarlet fever 44, whooping cough 10, cerebrospinal meningitis 16, smallpox 6, erysipelas 16, puerperal fever 27, measles 55, typhoid fever 67, diarrheal diseases 122, diphtheria and croup 78.

From whooping cough, New York 3, Chicago 1, Philadelphia 2, Baltimore 2, Pittsburg 1, Fitchburg 1. From smallpox, Philadelphia 6. From cerebrospinal meningitis, New York 11, Pittsburg 2, New Bedford, North Adams and Gardner 1 each. From erysipelas, New York 5, Chicago 1, Philadelphia 2, Baltimore 1, Pittsburg 1, Boston 4, Taunton 1, North Adams 1. From measles, New York 30, Philadelphia 10, Pittsburg 1, Boston 14.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending Feb. 20, the death-rate was 18.5. Deaths reported, 5,420; acute diseases of the respiratory organs (London) 195, whooping cough 191, diphtheria 70, measles 119, smallpox 7, scarlet fever 37.

The death-rate ranged from 8.3 in Tottenham to 27.9 in Bootle; London 17.5, West Ham 13.6, Brighton 13.6, Southampton 15.8, Plymouth 25.6, Bristol 16.4, Birmingham 22.6, Leicester 17.4, Nottingham 23.9, Liverpool 23.9, Bolton 23.1, Manchester 20.2, Bradford 21.9, Leeds 21.4, Hull 17.7, Cardiff 18.9, Rhondda 17.9, Merthyr Tydfil, 25.8, Smethwick 12.9, Newport (Mon.) 16.8.

METEOROLOGICAL RECORD.

For the week ending March 5, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	Rainfall in inches.
S.. 28	30.34	32	40	25	71	87	79	S	W	15	10	O.	O.	.14
M.. 29	30.30	34	38	29	68	67	68	N	N E	14	19	O.	O.	0
T.. 1	30.26	30	33	28	100	95	98	E	N E	20	8	R.	R.	.48
W.. 2	30.27	32	38	26	82	81	82	N W	S W	4	9	O.	C.	.01
T.. 3	29.61	37	50	24	97	96	96	S E	W	5	28	R.	R.	.42
F.. 4	30.33	17	24	10	52	40	46	N W	N W	26	14	C.	C.	.04
S.. 5	30.87	14	21	8	44	68	56	N	S E	8	9	C.	O.	T.
☞	30.27		35	21			75							1.09

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

DELAYED PUBLICATION. — The strike, now happily at an end, among printers and pressmen is responsible for continued delay in issuing the JOURNAL.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY, SECTION FOR SURGERY. — A meeting of this Section will be held at the Medical Library on Wednesday evening, April 6, at 8.15 P.M. The Society will discuss "The Treatment of General Peritonitis from Appendicitis." During the first half of the meeting the results of cases treated at the Massachusetts General Hospital will be presented and some brief papers will be read. The members of the Society will then discuss the subject with especial reference to the following questions:

What is your definition of general peritonitis?

Have you known cases of undoubted general peritonitis from acute appendicitis to recover without operation?

Should we operate on all cases however hopeless?

What can be done for a case in which operation is refused?

E. A. CODMAN, M.D.,
Secretary.

RECENT DEATHS.

JOHN KNOWSLEY THORNTON, M.B., C.M., died recently in Cambridge, England. He had for many years been distinguished for his work in abdominal surgery in London up to the onset of his illness in 1896. He was an honorary member of the American Association of Obstetricians and Gynecologists.

W. J. MCDERMOTT, M.D., a surgeon in the Civil War, and a personal friend of Presidents Lincoln and Grant, died at his home in the Borough of the Bronx, New York City, on March 13. He was seventy-three years of age, and a native of Portland, Me. He was graduated from the medical department of the University of the city of New York in 1854, and after two years of study in Europe began practice in the village of Westchester, N. Y. He was elected to the Legislature in 1860, and when in the following year the first call for troops was issued he resigned his seat in the Assembly and went to the front as surgeon of the Sixth Regiment New York Volunteers. At the end of the three months' service the regiment re-enlisted as the Sixty-sixth New York Volunteers. Dr. McDermott remained in the army throughout the war, and saw much active service. He was with Colonel Ellsworth when that officer was shot at Alexandria, and he assisted in the amputation of Gen. O. O. Howard's arm at the battle of Fair Oaks. At one time he was captured, and he was confined in Libby Prison for a season before being paroled.

MOREAU MORRIS, M.D., for many years connected in various capacities with the New York City Health Department, died on March 17. He was born at Stillwater, N. Y., on June 19, 1825, and was graduated from the College of Physicians and Surgeons, New York, in 1848. In 1866 he was appointed Health Commissioner, and in 1870 Superintendent of the New York City Health Department. From 1871 to 1884 he served as surgeon of the Seventh Regiment National Guard, State of New York.

WILLIAM FREDERIC HOLCOME, M.D., of New York, at one time widely known as a specialist in diseases of the eye and ear, died in the Presbyterian Hospital, New York, on March 17 at the age of seventy-seven years. He was born in Sterling, Mass., and was graduated from the Albany Medical College in 1850. After a course of special study in Europe he was appointed lecturer on diseases of the ear at the New York University Medical School, and in the following year, 1862, he became Professor of Diseases of the Eye and Ear at the New York Medical College. Dr. Holcome was instrumental in the founding of the New York Genealogical and Biographical Society in 1869. At the time of General Grant's last illness he was one of the specialists called in consultation.

BOOKS AND PAMPHLETS RECEIVED.

The Great Value of Drainage and Ice in the Early Stages of Mastoiditis. By Sargent F. Snow, M.D. Reprint.

A Manual of General Pathology for Students. By Sidney Martin, M.D., F.R.S., F.R.C.P. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Disease of the Intestines. A Text-Book for Practitioners and Students of Medicine. By Max Einhorn, M.D. Second, Revised Edition. Illustrated. New York: William Wood & Co. 1904.

Treatise on Diseases of the Skin. For the Use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D. Third Edition. Illustrated. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

A Case of Mycosis Fungoides treated by the X-ray. By Albert E. Carrier, M.D. Reprint.

Lectures on Diseases of the Nervous System. Second Series. Subjective Sensations of Sight and Sound, Abiotrophy and Other Lectures. By Sir William R. Gower, M.D., F.R.C.P., F.R.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

The Practical Medicine Series of Year Books; Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D. Vol. II. November, 1903. Chicago: The Year Book Publishers.

A Chart of Diseases of the Lungs, Pleuræ, Bronchi, Trachea and Larynx. By Edward C. Hill, M.D. Ausonia, Conn: The McArthur Hypophosphite Co.

Howe's Handbook of Parliamentary Usage. By Frank William Howe. New York: Hinds & Noble. 1904.

Des Humeurs opalescentes de l'Organisme étude clinique, expérimentale et critique. Par Le Dr. André Jousset. Paris: George Carré et C. Naud. 1901.

The Etiology of Influenza. A Brief Outline. By J. D. Harrigan, M.D. Reprint.

The Man who Pleases and the Woman who Charms. By John A. Cone. New York: Hinds & Noble.

Medical Union Number Six. By William Harvey King. New York: The Monograph Press. 1904.

A Laboratory Manual of Physiological and Pathological Chemistry. For Students in Medicine. By Dr. E. Salkowski. Authorized Translation from the Second Revised and Enlarged German Edition by W. R. Orndorff, A.B., Ph.D. Illustrated. New York: John Wiley & Sons. 1904.

Preventive Medicine. Two Prize Essays. "The General Principles of Preventive Medicine." By W. Wayne Babcock, M.D. "The Medical Inspection of Schools; A Problem in Preventive Medicine." By Lewis S. Somers, M.D. Brooklyn, N. Y. The Maltine Company.

Widener Memorial Industrial Training School for Crippled Children. By De Forest Willard, M.D. Reprint.

Sunshine and Fresh Air vs. the Finsen Ultra-Violet Rays and the Roentgen Rays in Tuberculosis of the Joints and Bones. By De Forest Willard, M. D. Reprint.

Annual Report of the Lynn Hospital for the Year 1903.

Memoria de los Trabajos Ejecutados por el Consejo Superior de Salubridad en el ano de 1900. Mexico. 1902.

La Torsion du Gordon spermatique et l'Infarctus hémorrhagique du testicule. Par Le Dr. André Lapointe. Paris. 1904.

Transactions of the Maine Medical Association, 1901–1903. Vol. XIV. Portland: Stephen Berry. 1903.

Pancreatitis Diabetica. By Col. Francis T. B. Fest, M.D. Reprint.

Obstetrics for Nurses. By Joseph B. De Lee, M.D. Illustrated. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

Original Articles.

ULTIMATE RESULTS OF SOME GYNECOLOGICAL OPERATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY RICHARD G. WADSWORTH, M.D., BOSTON.

For the Division of Surgery of the Medical School of Harvard University.

During my service as surgical house officer at the Massachusetts General Hospital I had occasion to hear several adverse criticisms from some members of the medical staff in regard to the results of gynecological operations which had been performed there. These criticisms were inspired by the patients who returned to the outpatient department for treatment after operation. With the idea of reaching some definite conclusion on the subject, I have, during the past year and a half, obtained the after-history of many of the cases who had undergone operations of this class during the past five years and have had an opportunity of examining a limited number of them. Each member of the surgical staff gave me permission to use his cases, so that I have had all the cases in the three surgical services at my disposal.

The conditions included in this investigation are limited to lacerations of the cervix and vaginal outlet, displacements of the uterus, endometritis and uterine fibroids. A few cases of cancer of the uterus were also traced, but only those on whom radical operation was performed, those not having been followed which were in too advanced a stage to allow of anything but palliative treatment. Under the other heads, every case was written to which had been discharged from the hospital in good condition. In all, about 450 letters have been sent out, the patients being asked to briefly describe any trouble they may have had since the operation. About 250 responded, but in several cases the answer was too vague to give any idea as to the real condition. All the patients previously written to were asked to come to the hospital on some day during a period of ten days last summer. Ninety-five patients came and most of them were examined. The examination was unsatisfactory and valueless in many of the cases who had had lacerations repaired, owing to their having been confined since operation, but in most of the other cases a very satisfactory idea of the anatomical as well as the symptomatic result was obtained.

Thus altogether there are 58 cases in whom both the anatomical and symptomatic results have been recorded and 159 in whom only the symptomatic result has been obtained. In these cases the data have been obtained from the patient's written statement and although a more accurate and perhaps a more favorable idea of the result would have been obtained from a personal interview, it must be granted that an operation has failed in its purpose if it has not, in the opinion of the patient, relieved the symptoms for the relief of which it was performed, even if the anatomical result be perfect.

There are 53 cases in whom lacerations of the perineum or cervix or both were repaired. Twenty-three of these have been examined, but in 10, confinement had occurred since operation, so that the examination could not give an accurate idea of the result of the operation. These 10 cases will be spoken of among the others in whom only the symptomatic result was obtained.

Of the 13 cases in whom confinement has not occurred since operation, 6 have had satisfactory anatomical results, 5 have had only partially satisfactory results and 2 have had bad results.

Of the 6 cases who have had good anatomical results, 5 have been relieved of symptoms, while 1, in whom the perineum only was repaired but in whom there was also retroversion, has been somewhat helped but still has very annoying backache.

Of the 5 cases in whom I have classed the anatomical result as being only partially satisfactory, the cervix only was repaired in one and the cervix and perineum in the other 4. Of these 4 cases, 1 has been entirely relieved of symptoms, 1 has been partially relieved, while 2 have had no relief whatever. In one of these 2 last-mentioned cases there was endometritis and retroversion and the uterus was curetted a week before the lacerations were repaired. The uterus is now retroverted and there is a very incomplete perineum. The patient complains of dysmenorrhea and constipation and says the uterus comes down every evening. She considers herself no better than before operation. In the other case, the uterus was also curetted. There is a good cervix, but the perineum is poor. The uterus is in normal position. The patient complains of pain in the back and right side of the pelvis, which she says is just as bad as before operation.

The case in whom the cervix only was repaired says that before operation she never had any trouble with her catamenia. Since then, however, she has had a feeling of pressure in the head, often accompanied by nausea and palpitation for three or four days before the period. These symptoms pass off with the appearance of the flow. The uterus is enlarged and tender and there is much erosion of the cervix, which, however, is intact. I have classified this case as partially satisfactory anatomically, because although the laceration of the cervix has been successfully repaired it seems probable from the symptoms that the cervical canal was too tightly closed.

In the 2 cases of bad result, both cervix and perineum were repaired. One of these was seen two years after operation. The perineum was torn to the sphincter and the cervix was occupied by a hard nodular growth, the size of an English walnut, suggesting fibroid. In the other the operation was entirely unsuccessful and the lacerations were again repaired last April, at the City Hospital, five years after the first operation. Neither patient received any relief of symptoms.

Thus in the 6 cases of good anatomical result, 5 have been cured of symptoms, while 1 has been partially relieved. Of the 5 cases of partial anatomical success, 1 has been cured, 1 has been partially relieved and 3 have had no relief. Of the 2 cases of anatomical failure, neither have received any relief of symptoms.

Beside these 13 cases, there are 40 cases in whom the cervix or perineum or both were repaired, and who have been heard from by letter. Combining these two groups, there are 53 cases

in whom the symptomatic result is known. Fourteen or 26.4% have been entirely relieved, 25 or 47.2% have been partially relieved and 14 or 26.4% have had no relief.

Of these last 14 cases, 5 have been examined and have already been spoken of. Of the remaining 9 cases, in 1 a recto-vaginal fistula resulted from the operation and the discomfort from this has overshadowed any benefit which might otherwise have been felt. In another case there was superficial sepsis in the perineum during convalescence. This patient says she has been under a doctor's care ever since and is not at all satisfied with the result of the operation. The other 7 cases simply state that they have been no better since operation and a few say they are not so well as before.

There are 5 cases in whom cystocele was operated on besides other lacerations. Four of these have been heard from by letter. Two have had entire relief of symptoms and 2 have received no benefit. The fifth case, in whom a rectocele was also repaired, was seen three years after operation. There was a well-marked cystocele but the rectocele had been entirely cured. The patient had been perfectly well for a year and a half after operation, but had then caught a severe cold, immediately following which the symptoms which were present before operation, bearing-down pain and discomfort in walking, returned and have continued ever since, so that she now considers herself no better than before operation. In spite of the temporary relief in this case, the ultimate result cannot be said to be satisfactory, so that in these 5 cases of cystocele, the result has been satisfactory in only 2 or 40%.

There are 22 cases in whom endometritis was present and in whom only dilatation and curettage was done. In 17 of these endometritis was the only abnormality, while in the 5 remaining cases other lesions were also present.

Of the 17 cases of uncomplicated endometritis, 9 (53%) have had complete relief of symptoms. In 4 (23.5%) there has been partial or temporary relief, while the remaining 4 (23.5%) have received no relief.

Of the 4 cases which I have placed under the head of partial relief, the first, on whom the operation was performed for the relief of leucorrhea, menorrhagia and dysmenorrhea, the dysmenorrhea has not been relieved, but the leucorrhea is very much better and the periods are now normal in quantity. The second case, who was fifty-three years old at the time of operation, complained of menorrhagia. There was, besides endometritis, prolapse of the uterus, cystocele and lacerated perineum. She has had no catamenia since the operation but has occasional "unpleasant discharges." She wears a pessary and considers herself no better than before operation. The third case, forty-four years old, had hyperplastic endometritis. She says she was helped for a few months but that since then she has been only slightly better than before operation. The fourth case, twenty years old and unmarried, had endometritis. She says she was helped for a short time after operation but is poorly now, suffering from light-headedness and fainting sensation and constant leucorrhea.

Of the 4 cases who have had no relief, in 1 the pathological report on the uterine mucosa was glandular hyperplasia. She says she had a severe hemorrhage on the way home and has had a slight but constant bloody flow ever since. She now considers herself worse than before operation. The second case was operated upon for backache, irregular catamenia and constant leucorrhea. Over a year after the operation she was in the same condition as before. The third case, who had uncomplicated endometritis, wrote nearly two years after operation that she had been no better. The fourth case complained of backache, headache and painful micturition. A caruncle of the urethra was cauterized after the uterus had been curetted. Three and a half years later she reported by letter that there was no relief of symptoms, and five years after operation she was seen personally by the writer. She still complained of the symptoms for which she had been operated on. Examination revealed nothing, owing to the patient's extreme nervousness and sensitiveness. No trace of a caruncle, however, could be found.

Of the 5 cases in whom endometritis was not the only abnormality, retroversion was present in all and in 1 there was also a lacerated cervix. One of these says she has had perfect health since operation, 3 have been helped but not entirely relieved and 1 says she is no better than before operation.

Of the 4 cases who have not had entire relief 1 was interviewed four years after operation. She says she has had 4 miscarriages since the operation, but in spite of that feels better than before she came to the hospital. The uterus is in retroversion but there is no endometritis. The second case, thirty-six years old, was thought to be in very early pregnancy at the time of operation. She says she did not regain her strength after leaving the hospital and was curetted again at Lynn one and a half years later on account of a miscarriage. Since then her health has been very good. When seen last summer, she had been having leucorrhea for three months. The uterus was retroverted and there was marked endometritis. The third case was operated on when forty years old. Five years later, when seen, she said she had been fairly well since the operation but not very strong. One week before I saw her she had had an abortion performed. The uterus was large and soft but in good position and there were extensive lacerations. The fourth case, who was operated on three years ago and who had had no relief of symptoms, presented when seen last summer a well-marked splanchnoptosis. The uterus, which was retroverted at the time of operation, is now in good position, but the kidneys and liver descend abnormally on inspiration and in the upright position, both kidneys descend to the crests of the ilia and the lower border of the liver is just below the umbilicus, the stomach also descending to well below the umbilicus. No mention of this condition was made in the records but it is probable that it was present at the time of operation and is amply sufficient to account for the lack of relief obtained by curetting the uterus. She has been fitted with an abdominal supporter, but I have not been able to find out whether or not it has given any relief.

Thus of these 22 cases in whom curettage for endometritis was done, 10 have been cured, 7 have been partially relieved and 5 have received no benefit.

There are 62 cases of retroversion. Forty-six of these were treated by ventral fixation alone,

6 were treated by ventral fixation and repair of lacerations, 4 were treated by curettage only and 6 by Alexander's operation.

Twenty-two of the 46 cases treated by ventral fixation alone have been examined. Of these 22 cases, 17 have had excellent anatomical results, 1 has had a partially successful result and in 4 the retroversion has recurred. Of the 17 cases who have had excellent anatomical results, only 4 have been entirely relieved of symptoms, while 10 have been partially relieved and 3 have had no relief. The one case in whom the anatomical result has been partially successful has had partial relief of symptoms. Of the 4 cases in whom the operation was anatomically unsuccessful, 3 have had no relief of symptoms, while 1 says she has been perfectly well since operation. Thus of 17 cases in whom retroversion has been successfully corrected, only 23.5% have been cured.

Of the 10 cases of excellent anatomical result who have been placed under the head of partial symptomatic relief, the first case, thirty-seven years old, in whom the uterus was in retroversion and adherent to the rectum and the omentum adherent to the left ovary, was seen one year after operation. She complained of weakness after the day's work, with some backache and severe headache during the catamenia. She thought she had had a miscarriage at three months six months after operation. The uterus was in good position though perhaps rather far forward, and the cicatrix was firm. The second case, thirty-four years old, was seen three and a half years after operation. She still had a dragging backache which, however, was less than before operation. She also complained of pain in the right side after standing, which was relieved on lying down. She said she could do very little. Examination showed the uterus in good position but there was well-marked rectocele and cystocele. The third case, fifty-three years old, says her general health is improved but she still has more or less backache and occasional twinges of pain in the left side. Local treatment at the Massachusetts General Hospital a year ago gave her no relief. The catamenia had ceased six months before operation. The uterus is in good position and nothing was found to account for the symptoms. The fourth case, twenty years old and unmarried, says she is better than before operation but still complains of backache and a steady pain in the front of the abdomen. Dysmenorrhea is less severe than before operation but she has leucorrhea for a few days before the periods. The uterus is in normal position but there is a slight thickening of the left tube, which may account for the symptoms. The fifth case, twenty-eight years old and married, had had the left ovary removed six years before the uterus was suspended. She is much better than before operation but still has more or less pain in the right side. The uterus is in normal position. She is reported by her physician to be moderately hysterical and introspective, a type of patient in whom complete cure is hardly to be hoped for. The sixth case says she was well for six months, when after hard work she had steady abdominal pain for one week and since then has had the same pain occasionally. She now complains of getting tired very easily. The uterus is in good position but there is a slight cystocele. In the seventh case, thirty-nine and married, tucks had previously been taken in the round ligament without correcting the retroversion. One year later the uterus was suspended and a ventral hernia resulting from the former operation repaired. The hernia recurred in six weeks and nine months later it was again repaired, the uterus being found suspended by a fibrous cord about three inches long. The hernia had not recurred when I saw her two and a half years after the last operation and the uterus was in good position. She said she was perfectly well except for a burning sensation in the wound after working. In the eighth case, twenty-seven years old and married, a cystic ovary was removed at the time the uterus was suspended. She has been much better since operation but still has some backache. The uterus is in good position but there is a hard insensitive mass the size of an egg low down on the right side of the uterus which seems like a fibroid and which is presumably the cause of the persistence of the backache. The ninth case, thirty-three years old, complained chiefly of dysmenorrhea before operation. This has not been at all relieved but she says she has less backache between the periods than before. The uterus is in good position but there is a fibroid the size of an English walnut on the posterior surface of the uterus and slight thickening and tenderness of the left tube. The tenth case, fifty-five years old, wrote three years after operation that she felt much better for the operation but still had to wear a support. Examination one year later showed the uterus to be in excellent position.

Of the 3 cases who have had successful anatomical results but who have received no relief of symptoms, the first, thirty-four years old and unmarried, was operated on three and a half years ago. She says she has never been as strong since, as before, the operation. The catamenia is regular but scant and as painful as before, and she feels that she has not been helped. The second case, thirty years old and married, says that the backache, leucorrhea, painful micturition and frequent headaches, of which she complained before operation, have not been relieved at all. The third case, thirty-three years old and married, complained of constant pain in the left side and leucorrhea. The uterus was retroflexed and adherent. The pain has been just as bad since operation. Five months ago she bore twins, and she is now very nervous and tired. There is a deep stellate laceration of the cervix and the perineum is badly torn but the uterus is in good position.

The one case who has been classed as showing a partially successful anatomical result was sixty-two years old and married. She is much better than before operation but still complains of backache, frequent micturition and of feeling something come down after hard work. There is a well-developed cystocele and some prolapse of the uterus, which is, however, suspended to the anterior abdominal wall.

Of the 4 cases in whom the retroversion has returned, the first, forty-one years old, says she has been perfectly well except for occasional attacks of pain and swelling in the left leg in which there was phlebitis during convalescence. The uterus is retroverted and slightly enlarged but freely movable. The second case received no relief of symptoms and was told at the hospital, six months after the operation, that she ought to have the operation repeated. The uterus is retroverted. The third case, twenty-two years old and unmarried, had an anteflexed and retroverted uterus. The uterus was straightened with a probe and curetted, and a week later was suspended to the anterior abdominal wall. She had had no relief either of dysmenorrhea or of backache. The uterus is now in the same condition as before operation. The fourth case, twenty-seven years old and unmarried, complained chiefly of dysmenorrhea before operation. There has been no relief of symptoms and she now finds partial relief by wearing a pessary.

There remain 24 cases of retroversion in whom ventral fixation only was done and in whom only the symptomatic result has been obtained. Thirteen or 54.16% of these have been entirely relieved of symptoms, 2 or 8.33% have been partially relieved and 9 or 37.5% have received no benefit.

This result is in striking contrast to that among the cases who returned to the hospital for examination, for of the 21 cases in this latter category, only 23.8% have been cured of symptoms, while in the 24 cases whose subsequent history has been obtained by letter, 54.16% say they have been entirely relieved of symptoms. This discrepancy can probably be accounted for by the assumption that, as a rule, those cases who have been cured did not care to take the trouble to come to the hospital, while those who have not been entirely relieved came in the hope of receiving some further benefit.

If the statements of those who were seen and questioned and the written statements of those who replied by letter be given equal weight, it is found that in this series of 46 cases of ventral fixation for retroversion, 18 or 39.14% have been cured, 13 or 28.26% have been partially relieved and 15 or 32.6% have received no benefit.

Of the 6 cases in whom lacerations were repaired and the uterus suspended, 3 have been entirely relieved of symptoms, 2 have been partially relieved and 1 says she has had very little relief.

Only one of these cases was examined. She is forty-eight years old. The uterus was suspended and the perineum repaired. She still has some backache but feels much better than before operation. The uterus is in good position but somewhat enlarged and there is a deep bilateral laceration of the cervix. There is a good perineum. The laceration of the cervix in this case is probably the cause of her symptoms.

Four cases were treated by curettage. One of these has been perfectly well, 2 have been partially relieved and 1 has received no relief.

Of the 3 cases who have not been cured, in the first, twenty-three years old and unmarried, adhesions of the uterus were stretched while under ether. She has been partially relieved of the dysmenorrhea for which the operation was performed. In the second case, a fistula in ano was curetted at the same time. She writes that the fistula has been cured but that she has had more or less womb trouble ever since. A second letter asking for more details has not been answered. The third case died of pneumonia six months after operation. The husband writes that she did not seem to have been helped by the operation.

Of the 6 cases who were treated by Alexander's operation, only one was examined. In this case the chief symptom before operation was menorrhagia. This became worse after operation and the uterus was curetted at the hospital six months later, the uterus then being recorded as in retroversion. Since then she has grown stronger, but when I saw her four years later she said the pain was just as bad as before and that she had had pain in the left side ever since the operation. The uterus was anterior but enlarged and pulled to the right side of the pelvis and there was some tenderness on the left side.

Two cases returned to the hospital, sixteen months and two and a half years later, respectively, with return of the retroversion. Both had ventral fixation performed with an excellent result in both. The third case writes that she felt a little better for a year after operation but that since then she has had more pain than before.

The fourth case says the operation was successful except that she cannot carry a child more than five months, she having had two miscarriages since operation. The fifth case says she has been troubled with soreness in the right side since operation, and has severe pain unless she wears a support. She probably has a hernia.

Thus symptomatic results in these 6 cases have been good in only 1 and very unsatisfactory in 5. In the one case which was examined, the original malposition of the uterus has only been changed to another form.

Seven cases of prolapse of the uterus have been traced.

Three of these were treated by ventral fixation and repair of lacerations. Of these 3 cases, 2 have been examined. One of these had a perfect anatomical result and had been perfectly well for over two years since the operation. The other was seen three years after operation, at which a cystocele and rectocele were repaired and the uterus suspended. There is a fairly firm perineum, but the cystocele has recurred and the cervix protrudes from the vagina, so that the patient has to wear a napkin. In spite of this, however, she considers herself very well except for some dragging pain on micturition. The other case in whom the perineum was repaired and the uterus suspended was heard from two years after operation by letter, in which she stated that she was very little better than before operation.

In the other 4 cases, lacerations were repaired, the uterus not being suspended. Three have been examined and in all of them the prolapse had recurred, 1 has felt somewhat better since the operation, while the other 2 have received no relief. The other case, who was heard from by letter, says she is in very good health and has trouble with the uterus only when lifting heavy weights. Thus in 3 cases of prolapse of the uterus, repair of lacerations and suspension of the uterus has been entirely successful in 1, and has given only slight relief in 2, while in 4 cases repair of laceration without suspension has given nearly complete relief in 1, slight relief in 1 and has entirely failed in 2.

There are 18 cases of procedentia. Nine of these were treated by ventral fixation and repair of lacerations. Of these 9 cases, 4 were examined and in all but one the procedentia had returned soon after operation. In this one case the uterus was suspended and the perineum and a cystocele were repaired. The uterus is now

adherent to the abdominal wall, but the cervix is just within the vaginal outlet and there is a large cystocele. The patient has not been relieved of symptoms, still complaining of pain and a dragging sensation in the pelvis.

The other 5 cases have been heard from by letter. One says she has "got along wonderfully well," which probably means that the uterus has been restored to its normal position; 3 say that they are better than before operation, but still feel as though the uterus might descend if they are not very careful; and in the fifth case the trouble became as bad as ever a few weeks after operation.

Thus in 9 cases of procedentia treated by ventral fixation and repair of laceration, there has been entire symptomatic relief in only 1, and partial relief in 3, while of the remaining 5 cases there has been no relief, the procedentia having recurred in 4 of them.

Four cases were treated by ventral fixation alone. None of these have been examined. Three say they are just as bad as before operation, while one has been perfectly well and had a successful confinement two years after operation.

Two cases were treated by Alexander's operation and repair of the vagina. In both the procedentia has recurred and neither has been helped in any way. One has a double inguinal hernia, doubtless as a result of the operation.

In one case the perineum only was repaired. This case wrote over two years after operation that she was somewhat better but had to insert a sponge to keep the uterus from protruding when on her feet.

In two cases vaginal hysterectomy was performed and the vaginal outlet repaired. One wrote four years later that she then had the same trouble as before, while the other, three years after operation wrote that the "cushion of the bladder" came down somewhat and that she also had leucorrhea but that otherwise she felt very well.

In summing up the results in these 18 cases of procedentia, it is found that of 9 cases treated by ventral fixation and repair of lacerations, only 1 has been cured, 4 have been relieved to some extent and in 4 the procedentia has recurred. Of 4 cases of ventral fixation alone, 1 has been entirely relieved, while in 3 the condition has recurred. Repair of the perineum in 1 case has given only partial relief, and Alexander's operation has given no relief whatever in 2 cases. Vaginal hysterectomy with repair of the vaginal outlet has given no relief in 1 case and partial relief in the other. Thus in these 18 cases of procedentia only 2 (11.1%) have been cured, 6 (33.3%) have been partially relieved and 10 (55.6%) have been in no way benefited by the operation.

Fifty cases of uterine fibroid have been followed. In 42 of these supravaginal hysterectomy was performed, in 5 myomectomy and 3 were discharged without operation.

Twelve of the cases of hysterectomy were examined. Eight of these have had perfect anatomical results and all but one say they have been perfectly well. This one case was perfectly well and strong for three years after operation except for mild symptoms of the menopause, but for the last two years she has had pain in the right side of the pelvis, which was the location of the pain before operation. Examination showed nothing to account for it.

Of the other 4 cases who were examined, 2 have endometritis and vaginitis, which according to their statements has been present since operation. Of the other 2 cases, 1 has a hernia in the scar and there is a hard tumor, which feels like a fibroid, about the size of an English walnut, in the left side of the pelvis. She feels, however, perfectly well, complaining only of occasional headache. In the other, there is a smooth, rounded bony tumor on the inner surface of the pubes on the left side which is entirely insensitive to touch but is the seat of occasional sharp twinges of pain. A fibrous band extends from the tumor to the cervix, which is, however, perfectly free except for this. The patient says she first felt the tumor six months after operation and that it has been slowly growing during the four and a half years which have elapsed since then. She feels otherwise perfectly well.

In discussing the symptomatic results of these cases of hysterectomy for fibroid, I shall leave out of consideration the symptoms arising from artificial menopause, as these will be considered separately.

Of the 42 cases of this series, including those which have been examined, 33 (77.5%) have been perfectly well since operation and the other 9 cases have had more or less trouble. Five of these 9 cases have been described in speaking of the anatomical results. Of the other 4 cases, 1 had a hernia in the scar and vaginal inflammation and piles which had not been helped by local treatment at her home. Last April the hernia was repaired and the hemorrhoids cauterized at the Massachusetts General Hospital, with what result I have been unable to ascertain. The remaining 3 cases have complained of general weakness and nervousness but have had no local symptoms referable to the operation. In view of the fact that both ovaries were removed in these 3 cases, it is probable that the nervous symptoms are due to the menopause, and that they are, therefore, only temporary. Hence the results may be considered satisfactory. Thus the total of cases in whom the result has been satisfactory is swelled to 36 or 85.7%.

In regard to the effect of leaving one or both ovaries in a hysterectomy for fibroid, in avoiding the symptoms of the artificial menopause, data have been obtained in only 28 cases, because many patients have not given any information as to nervous symptoms following operation and have not answered later letters containing specific questions and because in the records of 7 cases I can find no clew to show what was done with the ovaries.

Of these 28 cases, in 23 both ovaries were removed. Twenty-one of these 23 cases have had moderate or slight symptoms, such as flush-

ing, giddiness, chills or palpitation. In the other 2 cases there have been no symptoms. One of these was fifty-four years old and had flowed only once in the six months before operation, so that it is probable that the climacteric was well established when the ovaries were removed. The other case was thirty-seven years old. There was a large fibroid extending to above the umbilicus. Her periods had been regular and normal up to three months before operation. She skipped the next period and since the last one, which came at its regular time, she had been flowing constantly. She writes, three years after operation, that she has been perfectly well and has had no nervous symptoms whatever. It would seem probable from this that the irregularity in the catamenia before operation was due to the menopause rather than to the presence of the fibroid.

Of the 5 cases in whom one or both ovaries were left, 3 have had typical symptoms of the climacteric. These cases were forty-two, forty-three and forty-six years old. All three had had menstrual irregularity before operation, and this in conjunction with their ages leaves little doubt that the menopause was beginning at the time the ovaries were removed. Whether or not the nervous symptoms were less severe than they would have been if both ovaries had been removed cannot, of course, be known. The fourth case was forty years old, and the catamenia was normal up to the time of operation. One ovary was left. She writes that she has had no typical symptoms of the menopause but has had chills accompanied by malaise and headache every month for three years. There has been no flow, but she has associated these symptoms with the catamenia on account of their regularity. She says she has not been so strong or "ambitious" since the operation. It is hard to see how any good has been done in this case by leaving an ovary. The fifth case, forty-five years old at operation, had flowed for ten days every two weeks for the previous ten years. There was a fibroid the size of a large egg and supravaginal hysterectomy was done, both ovaries being left. She writes, three years after operation, that she has been perfectly well and has flowed regularly, though much less profusely, ever since. She has had no nervous symptoms whatever. This, then, is the only case in which distinct good has been attained by avoiding castration, and the result is the more interesting as the patient was at the age when the menopause was to be expected.

These statistics, although too few to afford ground for any comprehensive conclusion, are reported because they seem to show pretty definitely, in spite of the exception just described, that in patients over forty years of age little benefit is to be derived from leaving an ovary and also because they show that sometimes in cases considerably younger than the usual age at which the menopause is to be expected, no symptoms follow complete castration.

Of the 5 cases of fibroid on whom myomectomy was done, 4 have been perfectly well during periods varying from two to six years after operation. The fifth case writes that she has not been in good health and suffers from backache. She says that her doctor thinks there may be another tumor growing.

Of the 3 cases who were not operated on, one, aged thirty-nine, had a fibroid the size of a cocoanut. It was not removed on account of the absence of symptoms and the history of Graves' disease. She wrote about four years after leaving the hospital that she felt poorly for eight months after leaving the hospital but that since then she has been in good health. She thinks the tumor is growing very slowly. It would be of interest to know whether the menopause has occurred, as this might account for the improvement in her condition, but she makes no mention of her catamenia and a second letter has not been answered.

The second case, forty-three years old, had a large fibroid. Hysterectomy was advised but refused. Three years later the patient reported that she felt much better. Up to a year before she had had a constant bloody vaginal discharge, but since then, the periods have been regular and the flow profuse but lasting only five days. There is now a constant watery discharge but without blood. There are no symptoms except occasional pain in the region of the left ovary. The fibroid now extends nearly to the umbilicus. It is freely movable and without tenderness. The patient says she does not think it has increased in size during the last three years.

The third case is now fifty-three years old. She was at the hospital four years ago with a large fibroid, twice the size of a child's head and adherent behind and laterally. The patient declined operation on account of the lack of symptoms. When seen last summer she said she had had no trouble since she left the hospital. Menstruation had ceased over two years ago and she had had no vaginal discharge since then until the last month, when she had noticed slight leucorrhea. There was a large fibroid reaching nearly to the umbilicus which seemed to be adherent. She said she had been enjoying better health since the menstruation ceased than for the last twenty years. Evidently, in this case, the improvement in the general condition has been due to the menopause.

Thus in none of these 3 cases has any ill effect resulted from not having removed the fibroid. They were all near the age of the menopause, and we know this has occurred in one case. In the other two it is probably about to occur.

Twelve cases of cancer of the cervix or body of the uterus on whom radical operation was performed and who left the hospital in good condition have been traced. Five of these cases have been examined, 4 have been perfectly well and show no sign of recurrence two and a half, four and a half, five and five and a half years after operation, respectively. The fifth case, three and a half years after operation, shows a slight indefinite thickening on the left side of the

pelvis, entirely free from the vault of the vagina, which shows a perfectly normal scar. There are no symptoms whatever. It is impossible to say whether this thickening is recurrence or not.

In 5 cases, recurrence and death occurred within three years. Of the other 2 cases, 1, operated on a little over two years ago, is perfectly well and has no pain nor vaginal discharge. The other, five years after operation, said she was perfectly well and had no vaginal discharge until two months before I saw her, when she had had a slight show after lifting a heavy weight. She refused examination, without which it is of course impossible to know whether or not this slight flowing was due to beginning recurrence.

Thus of 12 cases of radical operation for cancer, in 5 recurrence and death occurred within three years and in 3 cases there was no sign of recurrence four and a half years or more after operation. Of the other 4 cases, the time since operation is too short to give any idea as to the probable outcome in 2 and the evidence is inconclusive in the other 2. It may, therefore, be said that cure has been obtained in 3 cases, that the operation has failed in 5 and that the result is still uncertain in 4.

In summing up the results of this investigation, the following conclusions have been reached:

The anatomical results of repair of lacerations of the cervix or perineum, or both, in 13 cases have been satisfactory in 46%, partially satisfactory in 38.5% and entirely unsatisfactory in 15.5%. The symptomatic result in 53 cases has been entirely satisfactory in 26.4% and partially satisfactory in 47.2%, leaving 26.4% in whom there has been no relief. Of 5 cases in whom cystocele was repaired, there has been a satisfactory symptomatic result in only 2 or 40%.

Curettage for endometritis in 22 cases has given complete symptomatic relief in 45.5% and partial relief in 31.8%, the remaining 22.7% having received no benefit.

Ventral fixation for retroversion in 22 cases has been anatomically successful in 77.3%, partially successful in 4.6%, and has failed to cure the displacement in 18.1%. In spite of this satisfactory percentage of anatomical cure, only 23.5% of these 22 cases have received satisfactory symptomatic relief.

The symptomatic results in 46 cases of ventral fixation, including the above, have been entirely satisfactory in 39.1%, partially satisfactory in 28.3% and unsatisfactory in 32.6%.

Of 6 cases of ventral fixation with repair of lacerations, 50% have been cured, 33% have received partial relief and 17% have not been helped.

Of 6 cases of Alexander's operation only 16% have been cured, while the remaining 84% have received no benefit.

Of 4 cases treated by curettage alone, 25% have been cured, 50% have been partially relieved and 25% have not been helped.

Taking all these cases together we find that in 63 cases of retroversion, the symptomatic relief has been complete in 37% and partial in 27.5%, while in 35.5% there has been no relief.

Of 7 cases of prolapse, in 3 ventral fixation and repair of laceration was done, giving entire symptomatic relief in 1, partial relief in 1 and no relief in 1, while in 4 cases repair of lacerations without ventral fixation has given complete relief in 1, partial relief in 1 and no relief in 2,

		Anatomical Result.							Symptomatic Result.							
Lesion.	Operation.	Excellent.	Percentage.	Fair.	Percentage.	Poor.	Percentage.	Total.	Excellent.	Percentage.	Fair.	Percentage.	Poor.	Percentage.	Total.	Total of Lesion.
Lacerations	Repair of Cervix or Perineum or both	6	46	5	38.5	2	15.5	13	14	26.4	25	47.2	14	26.4	53	58
	Repair of Cystocele and Perineum			1	100			1	2	40	1	20	2	40	5	
Endometritis	Curettage								10	45.5	7	31.8	5	22.7	22	22
Retroversion	Ventral Fixation	17	77.3	1	4.6	4	18.1	22	18	39.1	13	28.3	15	32.6	46	62
	Ventral Fixation and repair of lacerations	1	100					1	3	50	2	33	1	17	6	
	Curettage								1	25	2	50	1	25	4	
	Alexander's operation			1	33.3	2	66.6	3	1	16			5	84	6	
Prolapse	Ventral fixation and repair of lacerations	1	50			1	50	2	1	33.3	1	33.3	1	33.3	3	7
	Repair of lacerations					2	100	2	1	25	1	25	2	50	4	
Procedentia	Ventral fixation and repair of lacerations			1	25	3	75	4	1	11.2	4	44.4	4	44.4	9	18
	Ventral Fixation								1	25			3	75	4	
	Repair of Perineum										1	100			1	
	Alexander's operation												2	100	2	
	Hysterectomy and repair of lacerations										1	50	1	50	2	
Fibroid	Hysterectomy	8	66.6	4	33.3			12	33	77.5	9	22.5			42	50
	Myomectomy								4	80	1	20			5	
	Not operated								3						3	
Cancer	Pan-hysterectomy	No recurrence 4½ years or more after operation 3				Recurrence and death 5			Uncertain 4							

a total of entire relief in 28.6%, partial relief in 28.6% and no relief in 42.8%.

Of 18 cases of procedentia, in 9 ventral fixation and repair of lacerations have given entire symptomatic relief in 11.2%, partial relief in 44.4% and no relief in 44.4%. In 4 cases ventral fixation alone has given entire symptomatic relief in 25% and no relief in 75%. Alexander's operation has failed to give any relief in 2 cases, hysterectomy with repair of lacerations has given partial relief in 1 case and no relief in 1 case, and repair of the perineum has given partial relief in 1 case. Taking these 18 cases together, 11.1% have been entirely relieved, 33.3% have been partially relieved, while 55.6% have received no benefit.

Of 42 cases of hysterectomy for fibroid, 77.5% have been entirely relieved, while the remaining 22.5% have been only partially relieved. In 3 of the cases of partial relief, the trouble since operation has been slight and probably wholly dependent on the artificial menopause — so they may be classed as satisfactory. Thus 85.7% of these 42 cases have shown satisfactory symptomatic results.

The anatomical results in 12 cases of hysterectomy have been perfect in 66.6%, while the remaining 33.3% show no serious defect.

In regard to the avoidance of the symptoms of the artificial menopause by leaving an ovary in hysterectomy for fibroid, these cases show that little benefit is to be expected in cases over forty years old.

Of 5 cases of myomectomy, 80% show entire symptomatic relief, while in the remaining 20% there has been partial relief.

Three cases of fibroid, discharged without operation, have all been perfectly well for over three years.

Of 12 cases of cancer of the uterus on whom radical operation was performed, 3 show no sign of recurrence four and a half years or more after operation and may, therefore, be considered as probably cured. In 5 cases recurrence and death occurred within three years, while in the remaining 4 cases the result is still doubtful.

EYE-STRAIN CONSIDERED AS A FACTOR IN THE PRODUCTION OF LATERAL CURVATURE OF THE SPINE (PRELIMINARY COMMUNICATION).[1]

BY HENRY W. KILBURN, M.D., BOSTON,
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EVERY ophthalmologist is familiar with the fact that astigmatic patients, when one or both axes are oblique, and patients having vertical heterophoria, are apt to tilt the head to one side in order to obtain clearer vision. Also, there have been reported some cases of torticollis in which there has been a marked improvement in attitude after correction of the refractive error and relief of any existing vertical heterophoria. It has been my lot to see a number of cases of lateral curvature of the spine in which eye-strain seemed to me to play a part in producing the condition. In two of these cases there was a progressive myopia, and not only did relief from eye-strain seem to cause a marked improvement in attitude, but, when the curvature had been corrected by appropriate exercises, the myopia stopped increasing. Also, in one of these two cases the vision improved to an unusual degree after correction of the spinal curvature and improvement of the general nutrition.

The cases are too few in number to permit of dogmatizing on the subject; but I think that the results obtained justify my belief that there is, in some cases, at least, a connecton between eye-strain and spinal curvature. I will describe briefly three of the cases. They may be taken as typical ones.

CASE I. Girl aged eleven. I first saw her Aug. 28, 1901. Complained of occasional blurring of print, and of frequent frontal and supraorbital pain. Carried her head tilted to the left. Compound hypermetropic astigmatism, Axis 90°, O.D.; Axis 75°, O.S. Corrective lenses were ordered for constant use. Nov. 20, 1902, head not tilted to the left as much as at first visit, but still tilted somewhat. Noticed that the patient sat in a slouching position, and seemed unable to hold herself erect. Referred the case to Dr. R. W. Lovett for correction of faulty attitude. Nov. 24, Dr. Lovett reported "a left curve" of the spine, "which carries her head and body to the left of the vertical." He also reported a "slight stiffness," "showing that the curve is of some duration," and stated that, in all positions the patient bent farther to the left than to the right. May 6, patient stands correctly.

CASE II. Girl aged eight. I first saw her on May 31, 1894. The mother stated that the child winked constantly when she read. Examination of the refraction with a mydriatic showed the following conditions:

R.V. = 6/4— c + 0.25 Sph. ⌒ + .25 Cyl., Ax. 0°.
L.V. = 6/4— c + 0.25 Sph. ⌒ + .25 Cyl., Ax. 0°.

At the post-cycloplegic visit, the cylinders only were accepted, and these were ordered for constant use. Sept. 18, 1896, the child says she can now see better without the glasses than with them. A mydriatic was again used, and the following refractive condition was found:

R.V. = 6/4— c — 0.25 Sph. ⌒ —0.25 Cyl., Ax. 0°.
L.V. = 6/4— c — 0.25 Sph. ⌒ —0.25 Cyl., Ax. 0°.

In other words, the child had become myopic. There was also an exophoria of 1.5°. Advised her withdrawal from school for a year. The patient held her own until March, 1898, when I found an increase of myopia of 0.5 D., O.U. In the following November, I found a further increase of 0.25 D., O.U. There was no change in the astigmatism or the vision. There was, however, a right hyperphoria of 1.5°. Also, I noticed that the patient tilted her head to one side. I referred the case to Dr. Lovett, who found a lateral curvature of the spine. In addition to the treatment prescribed by Dr. Lovett, I ordered exercise prisms for the correction of the hyperphoria. With appropriate exercises for the trunk muscles, the spine became straight, and the myopia stopped increasing. Also, on Sept. 23, 1899, there was barely 0.5° of hyperphoria.

CASE III. Girl aged twelve. Was brought to me Nov. 19, 1900. The father stated that she held her book very near when she read, and that she had worn glasses for near-sight for several years. The head was tilted forward and sideways. Examination with a mydriatic showed the following conditions:

[1] Read before the New England Ophthalmological Society, March 8, 1904.

R.V. = 6/8 c — 4.50 Sph. () —0.37 Cyl., Ax. 0°.
L.V. = 6/12 c — 1.50 Sph. () — 3.00 Cyl., Ax. 25°.

There was also a left hyperphoria of 2°. As the accommodation was excellent, the full correction was ordered for constant use. On May 4, 1901, the vision and refraction remained unchanged, and the patient had no discomfort of eyes or head; but the hyperphoria was still present. The head was now held erect. Nov. 30, 1901, the patient complained of ocular pain. The vision was unchanged, but there was an increase of myopia of 0.25 D., O.D., and 0.50 D., O.S. I ordered the full correction, combined, O.S., with a prism of 2°, base down. Feb. 8, 1902, the patient had no discomfort, but the myopia had increased 0.75 D., O.U., and the patient tilted head and body slightly to the left. Ordered the patient to be taken out of school, and referred the case to Dr. Lovett, for correction of faulty attitude. He reported a left lateral curvature. With appropriate exercises, the curvature soon disappeared, and the patient held head and body erect. Not only was there no further increase of myopia, but, what was still more surprising, the vision began to improve, until on Jan. 6, 1903, the right vision was 6/5—, and the left vision was 6/6—.

I have seen several other similar cases where similar results were obtained; but the three cases described above may be taken as typical. I feel strongly that, in these cases, eye-strain, by inducing a faulty attitude, acted as an indirect factor in the production of the spinal curvature. I think, also, that, when the curvature had become established, the stooping position caused the patients to approach the eyes too near to the desk, and caused the myopia to increase. Thus, both the myopia and the scoliosis acted and reacted upon each other in a vicious cycle, just as do eye-strain and neurasthenia. The patients were all growing girls, *i. e.*, patients whose bodies were in the plastic condition of adolescence. All of them had poor muscular development, and the rapid increase of body weight had contributed to the vicious result, being proportionally far greater than the increase of muscular strength.

In Case I, while the correction of the refractive error evidently caused a less faulty position of the head, it was not able to do more than this until the stiffness of the spine had been relieved, and the muscles strengthened by exercises, so that they could properly support the trunk.

In Case II, my theory is that myopia caused the patient to lean forward over her desk at school, and that, supporting her body by her left elbow, her position was such as to cause a dropping of the right shoulder, and a curve of the spine to the right, with the convexity to the left. It is possible that this position may have caused the hyperphoria. At all events, when the faulty attitude was corrected, the hyperphoria disappeared.

In Case III, I think that the hyperphoria caused the patient to tilt the head and body to the left.

In Cases II and III, I think the myopia stopped increasing because, when the trunk muscles had been strengthened, the patients were able to sit erect without difficulty, and ceased to bend forward over the desk as formerly. In all the cases, correction of the eye-strain was not alone sufficient to remedy an already established spinal curvature.

Dr. Scholder of Lausanne, in a paper entitled "Die Schulskoliose und deren Behandlung,"[2] found a close relationship between myopia and scoliosis. He states that the amount of myopia found in such patients was in direct proportion to the amount of scoliosis. His statistics are based upon an examination of 2,314 school children, 571 of whom had a spinal curvature. The paper is a very exhaustive one and very interesting, and well repays a careful reading. Dr. Scholder's statistics have confirmed me in my opinion that there is often a direct relationship between eye-strain and spinal curvature. At all events, I think the idea deserves careful investigation.

SUPERNUMERARY BREASTS AND NIPPLES, WITH REPORT AND PHOTOGRAPH OF A CASE.

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THE occurrence of supernumerary breasts and nipples has been recognized for many centuries; as in the time of the ancient Greeks, Diana was represented with multiple breasts as a symbol of plenty; while the mother of the Roman emperor Severus is said to have acquired her name, Julia Mammæa, from this deformity. In more recent times, the unfortunate queen Anne Boleyn is reported to have presented the anomaly of three breasts.

As the subjects of supernumerary breasts and nipples are so closely allied, they are considered together in the present brief article.

CASE. A. B., thirty-eight years, married, was admitted to the Gynecological Service at the Boston City Hospital where I saw her with Dr. C. M. Green. About four weeks previous she had given birth to her fifth child by normal labor, but on the third day had chills and fever, and had not been well since. The child had nursed up to time of entrance and both breasts contained milk.

On the left breast about 6 cm. below the main nipple was another somewhat smaller but well formed, from which milk exuded almost as readily as from the upper. The patient said that milk always flowed from the lower nipple whenever the baby nursed upon the upper. While quite large at the time of entrance, it became reduced in size and appears in the photograph considerably smaller than when first seen. No other member of the family had any such deformity.

MEASUREMENTS.

Main areola	3.5 cm. in diameter.
Main nipple	.2 cm. in diameter.
Accessory areola	.3 cm. in diameter.
Accessory nipple	.1 cm. in diameter.
Distance between nipples	.6 cm.

[2] Archiv. f. Orthopädie, Mechanotherapie, u. Unfallchirurgie. I Band, 3 Heft, 1903.



Although often mentioned by the older writers, Meckel [1] was the first to attempt to explain these anatomical curiosities from an embryological standpoint, and following him, Darwin [2] and Bartels [3] called attention to them in connection with the theories of evolution. The references to the writings of the older physicians will be found in the very complete article of Leichtenstern.[4] According to many observers anomalies of this nature are not uncommon, appearing in men quite as often as in women; in fact both Bruce [5] and Leichtenstern declare them twice as frequent in the former. Bruce found 60 in 3,956 examinations (1.56%), while Leichtenstern places the proportion at 1 in 500, including both sexes. Leichtenstern, in 1878, collected 92, adding to them 13 of his own; Hartung [6] in 1885, 66; Puech,[7] in 1876, 77 in France alone; and Bardeleben,[8] among recruits, found one man in seven presenting one or more accessory nipples.

From external appearances these anomalies may be roughly divided into two general types according as multiple nipples occur upon what appears to be one breast (polythelia) or when nipples appear on other parts of the body apparently connected with a certain amount of isolated breast tissue (polymazia). Both of these terms, however, have been used interchangeably.

Usually the supernumerary breasts and nipples are small and poorly developed, but occasionally one or more of them may attain a considerable size and give milk freely. Gardeur [9] mentions a mulatto woman with four milk-giving breasts, and Bartholinus [10] a Danish woman with three. They increase in size during pregnancy and oftentimes the first sign of the nature of these nipples, which have often been mistaken for nævi, comes with the physiological activity of the underlying glandular structures. Occasionally breast tissue has also been known to exist in the axilla and swell with each pregnancy; although neither ducts nor nipple had developed. Goldberger [31] reports one and Leichtenstern three such instances.

Although usually found along two lines which run from the anterior borders of the axillæ to the pubes and rather inclined to symmetrical arrangement, they are often irregularly placed. Percy [11] refers to a case with five breasts, the fifth being in the median line, and in the writings of Fortunius Licetus (1668) [12] is a picture of such an arrangement (figured by Neugebauer). Accessory breasts are also reported on the labia majora (Hartung), on the outside of the thigh (Robert [13]), over the acromion (Klob [14]), on the back (Duval), twice in the walls of dermoid ovarian cysts (Haffter [30]); in the groin (Ahlfeld [15]) and in front of the ear (Barth [32]). In Robert's case the woman nursed a child from the breast for thirty months, and in one published by Jussieu [16] a gland in the groin was occasionally suckled by the infant. Neugebauer [17] reports the highest number of supernumerary nipples in a single individual and in his article, the reference to which is given, will be found a reproduction of a photograph of his case showing ten nipples of various sizes. In the article of Quinquaud [18] is also a most excellent photograph of axillary breasts.

Heredity appears to have a certain influence; as Hirst [19] and Robert have both seen polymazia and Woodman [20] supernumerary nipples in mother and daughter, while Lousier [21] speaks of a woman who, having but one breast, transmitted the deformity. Supernumerary nipples are found upon the same breast. Hollerius [22] mentions one with two nipples, each of which secreted milk in abundance and in our own case milk spurted from the lower nipple, although only the upper was suckled by the infant. They have been found in all positions around the chief nipple, but are usually small and situated below in over 90% of the cases: usually upon the line mentioned.

The questions as to whether the accessory nipples are connected with the main breast or with separate collections of tissue; as to the nature of the underlying glandular structures; as well as the cause of such anomalies, have been

[1] Meckel: Illus. Med. Zeitung. B. i, s. 142.
[2] Darwin: Descent of Man, 1877, p. 37.
[3] Bartels: Archiv. f. Anat. u. Phys., Leipzig, 1875, s. 745.
[4] Leichtenstern: Virchow's Archiv., 1878, B. lxxiii, s. 222.
[5] Bruce: Journ. Anat. & Phys., London, 1878–9, vol. xiii. p. 425.
[6] Hartung: "Ueber ein Fall von Mamma accessoria." Inaug. Diss., Erlangen, 1872.
Puech: Arch. de tocol. et de gynéc., Paris, 1892, T. xix, p. 393.
[8] Bardeleben: Anatom. Ans., 1892, No. 3.
[9] Gardeur: Dict. Sciences med., Paris, 1812, p. 528.
[10] Bartholinus: Hist. Anat. Rariorum, Cent. iv, Hafniæ, 1654.
[11] Percy: Dict. de Sciences med., Paris, 1811, T. xxxiv, p. 525.
[12] Licetus: See Ref. 17.
[13] Robert: Journ. gener. de med., T. c, p. 57.
[14] Klob: Zeitschrift d. K. K. Gesellsch. d. Aerzte z. Wien, 1858, B. i, s. 52.
[15] Ahlfeld: Missbildungen der Menschen (Förster), I. Abschnitt, S. 110.
[16] Jussieu: Lancet, London, vol. xii, p. 618.
[17] Neugebauer: Centralbl. f. Gynxk., 1886, B. x. s. 729.
[18] Quinquaud: Revue phot. d. hôp. de Paris, 1870, T. ii, p. 16.
[19] Hirst: University Med. Mag., Philadelphia, May, 1896.
[20] Woodman: Trans. Obstet. Soc., London, vol. ix, p. 50.
[21] Lousier: Dissert. sur la lactation, p. 15, Paris, 1802.
[22] Hollerius: Consil. et Observat. rar., s. ii, p. 686, Ed. 1589.

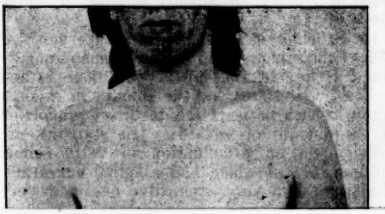
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[26] Champneys: Trans. Med. Chir. Soc., London, vol. lxix, p. 419.
[27] E. Martin: Archiv. f. klin. Chir., 1893, B. xlv, p. 880.
[28] Flechsig: De Polymastia. Dissert. Schneeberg, 1839.
[29] Virchow: See Hausemann, Verhandl. d. Berlin. Anthropolog. Gesellsch. May 18, 1892.
[30] Haffter: Archiv. f. Heilk., xvi Jahrg., 1875, p. 56.
[31] Goldberger: Archiv. f. Gyn., 1895, B. xlix, s. 272.
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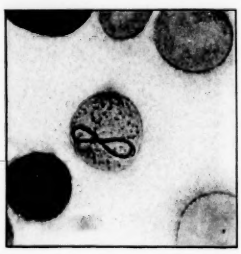
[33] Williams: Journ. Anat. & Physiol., 1891.
[1] Journ. of Med. Research, Feb., 1903.
[1] Read before the Norfolk District, Massachusetts Medical Society at Dorchester, Dec. 29, 1903.



giving breasts, and Bartholinus [10] a Danish woman with three. They increase in size during pregnancy and oftentimes the first sign of the nature of these nipples, which have often been mistaken for nævi, comes with the physiological activity of the underlying glandular structures. Occasionally breast tissue has also been known to exist in the axilla and swell with each pregnancy; although neither ducts nor nipple had developed. Goldberger [21] reports one and Leichtenstern three such instances.

Although usually found along two lines which

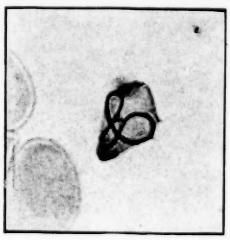
RING BODIES—CABOT.



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isolated breast tissue (polymazia). Both of these terms, however, have been used interchangeably.

Usually the supernumerary breasts and nipples are small and poorly developed, but occasionally one or more of them may attain a considerable size and give milk freely. Gardeur [9] mentions a mulatto woman with four milk-

The questions as to whether the accessory nipples are connected with the main breast or with separate collections of tissue; as to the nature of the underlying glandular structures; as well as the cause of such anomalies, have been

[1] Meckel: Illus. Med. Zeitung. B. i, s. 142.
[2] Darwin: Descent of Man, 1877, p. 37.
[3] Bartels: Archiv. f. Anat. u. Phys., Leipzig, 1875, s. 745.
[4] Leichtenstern: Virchow's Archiv., 1878, B. lxxiii, s. 222.
[5] Bruce: Journ. Anat. & Phys., London, 1878–9, vol. xiii. p, 425.
[6] Hartung: "Ueber ein Fall von Mamma accessoria." Inaug. Diss., Erlangen, 1872.
Puech: Arch. de tocol. et de gynéc., Paris, 1892, T. xix, p. 393.
[8] Bardeleben: Anatom. Ans., 1892, No. 3.
[9] Gardeur: Dict. Sciences med., Paris, 1812, p. 528.
[10] Bartholinus: Hist. Anat. Rariorum, Cent. iv, Hafniae, 1654.
[11] Percy: Dict. de Sciences med., Paris, 1811, T. xxxiv, p. 525.
[12] Licetus: See Ref. 17.
[13] Robert: Journ. gener. de med., T. c, p. 57.
[14] Klob: Zeitschrift d. K. K. Gesellsch. d. Aerzte z. Wien, 1858, B. i, s. 52.
[15] Ahlfeld: Missbildungen der Menschen (Förster), I. Abschnitt, S. 110.
[16] Jussieu: Lancet, London, vol. xii, p. 618.
[17] Neugebauer: Centralbl. f. Gynxk., 1886, B. x. s. 729.
[18] Quinquaud: Revue phot. d. hôp. de Paris, 1870, T. ii, p. 16.
[19] Hirst: University Med. Mag., Philadelphia, May, 1896.
[20] Woodman: Trans. Obstet. Soc., London, vol. ix, p. 50.
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variously answered by different writers. Förster [23] explains multiple nipples upon the same breast as separate openings for different bundles of milk ducts and in our own case this view seems quite probable. Ahlfeld considers it quite natural that milk-giving glands are found in the axilla, as the lymphatic glands of this region are connected with the breast; but Neugebauer thought his famous case one of true mammæ accessoriæ.

As to the manner in which the transplantation takes place, widely divergent opinions prevail. Ahlfeld [15] says that by pressure of the amnion part of the cells become separated, and, fastened to the amnion, are transplanted to other portions of the surface of the body. Förster and E. Hartung hold the same idea as to portions of tissue becoming separated, but express no opinion as to the manner of its occurrence. According to Leichtenstern many previously considered accessory breasts the result of aberration of the milk ducts probably from the work of Meckel and Owen. St. Hilaire sought to trace polymazia back to the general plan of the lower mammals and Darwin thought it due to atavism. Leichtenstern, Neugebauer, Billroth and many others consider it a reversion to the previous types of our ancestors. Perls, [24] on the other hand, has strongly combated the view of atavism and Duval [25] explained the axillary, as well as those appearing upon the back and acromion, as modifications of the sebaceous glands. Champneys [26] has also advocated this view. However, Virchow [29] remarks that it is not so easy to tell with which one is dealing as their development is so similar. E. Martin [27] believes that certain parts of the breast tissue are cut off from the mamma and lie near to the true breast. These are often felt as tumors, and swell with pregnancy and menstruation, but are not true accessory breasts. They may even appear in the axilla. Flechsig [28] held much the same view for this class of cases and Hartung gave to these structures the name of "mammæ accessoriæ spuriæ."

The proposition has been advanced that females with supernumerary breasts are more liable to multiple pregnancies, but there is no reason to believe that such is the case, as only two appear in Leichtenstern's series of 70 females.

The theory of reversion to some previous type has evidently the greatest number of adherents among the writers upon these subjects and certainly offers the most satisfactory explanation for the appearance from time to time of these rather interesting deformities. For the anomalous position of such as occur on the outer side of the thigh and on the back, some further explanation must be sought and possibly in these very rare cases the transplantation theory of Ahlfeld may be correct. As regards the nipples which appear as accessories of the main nipple of the breast, the theory of Förster offers an adequate explanation and one in keeping with the embryological development of the organ. Neoplastic changes, according to E. Martin, [27] are so rare in supernumerary breasts that he finds only one doubtful report in medical literature beside his own. At the same time he considers that the small "lobuli aberrantes" about the breast should be watched and removed if they are the cause of discomfort, as new growths appear at times to start in these structures. The reader is also referred to the article by Williams [33] for further information.

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[24] Perls: See Ref. 17.
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RING BODIES IN ANEMIC BLOOD, ADDITIONAL FORMS.

BY RICHARD C. CABOT, M.D., BOSTON.

Since my first article on the subject of ring bodies [1] I have examined in all fourteen cases of pernicious anemia in the active stages, nine of which (or 64%) showed the presence of rings more or less similar to those previously described. I have also found them in the anemia secondary to lead poisoning as well as in lymphatic leukemia. Negative results were obtained in four cases of pernicious anemia in the stage of remission, in ten cases of leukemia (six of the lymphatic and four of the myelogenous type), nine cases of severe secondary anemia from various causes and twenty-two cases of various skin diseases.

My friend, Dr. Charles E. Simon, in the latest edition of his text book on *Clinical Diagnosis*, confirms my findings and pictures.

In the accompanying cuts are shown some forms not previously illustrated and serving to increase, rather than to dissipate, my ignorance in regard to their origin and nature.

[33] Williams: Journ. Anat. & Physiol., 1891.
[1] Journ. of Med. Research, Feb., 1903.

TYPHOID FEVER IN INFANCY, WITH REPORT OF A CASE COMPLICATED WITH MENINGITIS TERMINATING IN RECOVERY.[1]

BY CHARLES P. SYLVESTER, M.D., DORCHESTER, MASS.

Typhoid fever in infancy is getting its share of historians at present, and I know of no subject in pediatrics upon which there is more discordant feeling, nor one which will cause a more heated discussion among children specialists. All now admit that it does occur, but its frequency is the question upon which the disagreements arise. Holt and Northrup, from their own experiences, and from the records of the New York Foundling Hospital and Infant Asylum, claim that it is extremely rare, the former stating that he has never seen a case in a child under two years of age, while Northrup, in his many hospital autopsies, has never once found

[1] Read before the Norfolk District, Massachusetts Medical Society at Dorchester, Dec. 29, 1903.

evidence of the disease, nor do the records of the two hospitals show a single case. Griffith of Philadelphia, on the other hand, has collected 417 reported cases, some of which, however, are doubtful, owing to the absence of the Widal reaction. Morse, who has very carefully treated the subject, states that it is infrequent.

There is no doubt that infantile typhoid is much more prevalent than is generally believed, but, from the somewhat atypical symptoms, shorter duration and the teaching of authors of such eminent repute as Holt, it has neither been recognized nor looked for, but has passed under the disguise of ileo-colitis, ptomaine poisoning, broncho-pneumonia, influenza or meningitis, it sometimes closely simulating the latter disease. The fact that autopsy failed to give evidence of the intestinal lesion would not necessarily disprove its existence in infancy, however convincing such facts would be in childhood and adults, for, as I shall mention later, the intestinal symptoms are not often marked, the inflammation and infiltration of the intestinal glands not usually being severe enough to leave ulceration or to furnish diagnostic lesions for the pathologist, such complications as hemorrhage and perforation being extremely rare. Moreover, measles, scarlet fever, diphtheria, ileo-colitis or even simple diarrhea, may produce lesions of swelling, hyperplasia and fatty degeneration of the intestinal and mesenteric glands identical with those of typhoid of early childhood.

The shortness of the fever period would seem to confirm the statement as to the mildness of the intestinal condition, as the secondary fever due to the absorption of septic material from the sloughing ulcers is absent. Why infants should not be victims to the disease oftener than they appear to be I fail to understand, living as they so often do upon cow's milk modified with water, and being so susceptible to gastro-intestinal and other bacterial diseases. The physiological leucocytosis may be worth consideration as an immunizing power against the Eberth bacillus during the first two years of life. Breast-fed infants are far from being so naturally exempt as most chroniclers state, for aside from the water which the child takes, the mother, after being exposed to the disease, may excrete the bacillus from her breasts whether she be a victim to the disease or has a natural or acquired immunity. This would account for some of the sporadic cases of infancy. The case which I report below may have become infected from the breasts of the mother.

The only absolute way of differentiating between typhoid in infancy and diseases which resemble it is by the Widal serum reaction, and until this technique is employed in all cases of continued fevers no one has a right to say that the disease does not occur primarily, or as a complication, or that it is even extremely rare. Had this test been applied more since it was discovered in 1896, it is not improbable that some of the cases which Holt diagnosed as broncho-pneumonia from "prostration, cyanosis and rapid respiration," or as meningitis from the "continuance and severity of the nervous symptoms rather than by the presence or absence of single or special symptoms," might have responded beautifully to the reaction. Unfortunately the test does not occur early in the disease, frequently not before the tenth day, and often has not been found until after recovery, and no doubt death claims many which are buried under the certificate of other diseases before occurrence, unless autopsy clears up the diagnosis. In all continued fevers it should be sought for every second day until it is found, or until death or recovery takes place, and occasionally after the latter until the sixtieth day if any doubt still exists. Isolating the bacillus from the blood bids fair, when the technique is a little better developed, to differentiate the disease six or seven days before the clumping takes place. A positive paratyphoid reaction may clear up the doubt, although I find no report of this form of disease in infancy.

The period of incubation in the little ones is rather difficult to determine, owing to the small number of cases reported and to the difficulty in tracing the time of exposure and the first appearance of the symptoms. However, it would seem to be about the same as in later life, or longer, according to the susceptibility of the infant.

The bacillus, besides gaining entrance by the usual methods, may pass in utero, through the placenta, directly into the child's blood, generally causing its death, although not invariably.

Symptoms.—The onset is usually more abrupt than in later life, and the nervous symptoms are usually marked throughout the disease, much more than the intestinal. Vomiting is common; epistaxis is infrequent; bronchitis is generally present with its usual signs; diarrhea is the rule, though many cases are constipated; tympanitis, with gurgling in right iliac fossa, is usually marked and sometimes absent; and abdominal pain and splenic tenderness may be found; systolic heart murmur may be marked, and in the anemic or badly nourished may present a serious complication ere the disease ends.

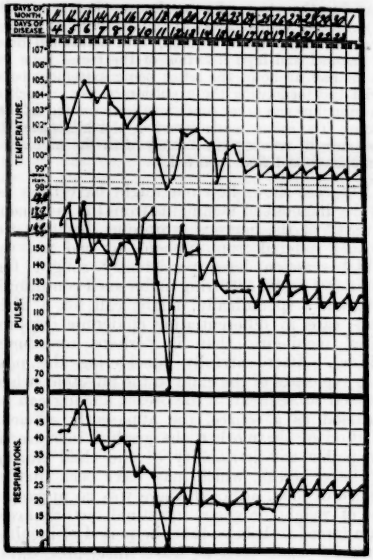
The spleen, although always enlarged, may be doubtful to palpation or percussion on account of the distention of abdomen. It may be very soft and should be handled with care. Although not always found, the eruption is probably present in every case at some time, and may be very profuse. Desquamation may occur, and moderate albuminuria is present. White blood count in absence of complications will be normal for infancy, when it is higher than in later life. The gradual incline of temperature curve may not be observed, owing to the sudden onset or late observance of sickness. Thus the symptoms in severe cases anyway are to a certain extent similar to those of typhoid of childhood. They may be typical or atypical, mild or severe, and the nervous symptoms are mild or severe, but usually predominate, and with the beginning of the disease mild muscular twitching, with

retracted head or general convulsions, may occur. Even Kernig's sign may be present to apparently confirm your diagnosis of meningitis, but wait,—the enlarging spleen, the distressing distention, appearance of rose spots, and lastly, the most important and absolute diagnostic point, the Widal reaction, appears and dissipates all doubt as to the disase.

The prognosis is more unfavorable than at any other period of life, owing principally to the frequency of the serious complications. Bronchopneumonia, scarlet fever, meningitis, measles, diphtheria, acute otitis media and noma may turn the tide against the patient. The mortality of cases recorded varies from 25 to 50%. This is certainly too high, as mild cases are not so apt to be diagnosed or reported. The duration of the fever stage is ordinarily from two to three weeks, and may be even shorter in infants recovering without complications. An idea as to the treatment will be considered under the case below.

R. L., boy, six months. Mother contracted typhoid in Ohio the last of March, 1903, by drinking water from an infected well, and returned East with child, to be taken sick April 20. Nursed child until April 30, when she had temperature of 104.5°. Baby was then put on a prepared food and removed to a room on the floor below, and on May 28 was brought to the dying mother, who held his hand — which was afterward carefully disinfected — for a few minutes prior to her death. Ten days later, thirty-nine days after last nursing and just sixty days after the mother drank infected water, the baby, who was previously well, although abnormally pale, became very nervous, irritable and sleepless. Vomited on third day and had three light-greenish, watery movements.

I first saw the child June 11, the fourth day of the sickness. Extreme pallor and nervous symptoms first attracted my attention. Head was retracted and fingers and muscles of other parts were convulsive; temperature was 104°, pulse 165 and respiration 44; lungs were negative, but there was a marked systolic murmur; spleen was palpable and abdomen distended with gurgling in the right iliac fossa; pupils were regular; Kernig's sign was present, no eruption. Temperature reached 105.1° in next two days; pulse 180; respiration 52 and irregular with slight cough and mucous rales in smaller bronchi. Rose spots appeared on the sixth day in successive crops in right epigastrium, hypogastric and lumbar regions, and were present for a week. Patient was now delirious, with carphologia and other nervous symptoms intensified. Distention became greater, making percussion and palpation of spleen difficult, and discharges from the bowels were four to five daily. On the ninth day temperature had declined to 102°, pulse 150 and respiration 30. Tongue was brown, dry and cracked; cough slightly increasing. On June 17, the tenth day of disease, unmistakable symptoms of incipient meningitis appeared, followed later by others which fully confirmed the diagnosis. The skin was hyperesthetic; the child, jumping on being touched or at loud noises, would awaken screaming in pain, vomiting and refusing all food. Eyes were widely dilated, and convulsions occurred one after the other almost all night and occasionally next day, opisthotonos and stupor following with an intense drop in pulse, temperature and respiration during the next twenty-four hours, as shown on chart, the temperature



falling from 103 to 98, pulse from 176 to 60 and respiration from 30 to 7 per minute and irregular, when child was cyanosed and in deep coma with lower extremities rigidly flexed and pupils contracted and unequal. Opisthotonos, rigidly flexed legs, unequal pupils and coma remained for two days. Twitching of right side, especially leg, and later, to a less degree, the left side, and internal strabismus of right eye, remained until the eighth day of meningitis and the eighteenth of typhoid. On the twentieth day, morning and evening temperatures were practically normal, bowel discharges about normal in number and color, and slight cough, heart murmur and cyanosis, requiring constant stimulation, were still present, but improving. The serum reaction was positive on the eighteenth day of disease, although last negative was four days previous. Paratyphoid was negative; urine, examined on twelfth day, contained moderate amount of albumen. I regret that no blood count was made.

Treatment. — Ice compress was kept continually around the head until the temperature and nervous symptoms had practically disappeared. The irritable stomach was fed with milk modified and peptonized, its strength increased by the addition of one of the prepared foods. For two days of coma peptonized enemata of milk and beef juice were administered, except when the legs were too rigidly flexed to allow the insertion of the rectal tube. Brandy, five drops in the beginning every three hours, was gradually increased to one or one and a half drams every one to three hours, depending upon the degree of collapse, and was at times with digitalis, nitroglycerin and atrophin ruthlessly given, with mustard paste about the chest and actual cautery to the back of the neck. Strychnin was not used much on account of the nervousness. Oxygen was given with good effect toward the end of the meningeal symptoms, when the child was cyanotic, improving his color, soothing him to sleep and quieting his cough, which I believe

was due then to cardiac weakness. For tympanitis injections of soap and water or oil, emulsion of assafetida and turpentine were used, with occasional doses of calomel and high insertion of the rectal tube left in for half an hour, the latter being extremely beneficial and facilitating the expulsion of gas. Cracked, bleeding lips and other conditions were treated as they arose. The infant made a perfect convalescence, the first case of recovery in infancy with the meningeal complications I find reported.

The case shows how one might have been led to the diagnosis of meningitis from the increasing severity of the nervous symptoms, had not the mother suffered from typhoid, or had not the Widal reaction been persistently sought for, and a few cases, occurring under such conditions, apparently sporadically, might call for a little more care in differentiating epidermic cerebro-spinal meningitis than is perhaps sometimes utilized. After carefully considering the possible exposures of the child to the infection, when his food subsequent to the breast nursing can be excluded as a source, the apparently efficient isolation of the mother, the gradual increase in the pallor and irritability of the child during the latter weeks, which may have been due to change of food, although there was no apparent loss of weight or gastro-intestinal disturbances, I am forced to believe that the period of incubation may have been at least thirty-nine days, that the insusceptibility of the infant was overcome only after a long struggle. As, however, I saw the mother only in consultation, I am unable to vouch for the constancy of the quarantine, but if the child contracted the disease during the thirty-nine days previous to the appearance of the symptoms, more care should be used to protect the susceptible than is deemed necessary or exercised by our contemporary therapeutists.

Clinical Department.

AN ATTEMPTED SUICIDE BY ILLUMINATING GAS. [1]

BY FRANK HOLYOKE, M.D., HOLYOKE, MASS.

THE toxic results of inhalation of illuminating gas are twofold, causing in some cases simple asphyxiation; in others "an intoxication by prolonged contact with the gas, leading to a toxemia and the formation of co-hemoglobin" (E. H. Bartley).

The following case is of the second type, in the acute form, and occurred on July the first, when the roomers in an apartment house were disturbed by moaning heard in a neighboring room which had continued through the afternoon and evening until eight o'clock. They knocked at the door but were unanswered. The police were called and on breaking in the door, which was locked and corked with rags and the windows closed tightly, quite effectually preventing the escape of the illuminating gas which was pouring into the room from two open jets of the chandelier, they discovered the air unbreathable and Mr. A. C., a man of forty-four years of age, lying back in an easy chair unconscious, in a high-studded room which was 12 by 15 feet square. He was removed from the room and the windows and doors thrown open. It may be well to note that this illuminating gas is a mixture which averages, through the year, two parts coal and one part water gas, according to the state inspector's test at Holyoke.

Dr. J. C. Hubbard of Holyoke answered the call within ten minutes and found his patient perspiring profusely, his clothes being drenched with sweat; the pupils were dilated, face cyanotic, the limbs relaxed, pulse imperceptible at the wrist, but a feeble heart's action was felt, beating about 140 per minute. Respiration was very slow and gasping and the jaw had dropped — in short what appeared to be a state of collapse.

Dr. Hubbard first tried artificial respiration, which was followed by increased frequency in respiration, while $\frac{1}{30}$ gr. of sulphate of strychnia in divided doses and $\frac{1}{100}$ gr. of nitro-glycerine, during the half-hour that he was in attendance, restored the pulse to the wrist, but the doctor had little hopes of his recovery. The patient being removed to the House of Providence Hospital, I was called as medical examiner at 9.30 P.M. I found him lying in bed stripped of clothing but covered with blankets. The body was pale and cold. The arms and legs had now become cold, rigid and in a state of tetanic convulsion. The pupils were markedly dilated and did not respond to light. The breath was strong with the naphtha-like odor of gas, which did not entirely disappear until the fourth day. Temperature by rectum was subnormal 96½, which according to statistics appears exceptional. The pulse 142, respiration 32 and shallow, with spasmodic action as though snapping for breath, and a thin frothy mucus had to be wiped occasionally from between the lips.

Physical examination showed feeble heart's action and large mucus rales over both lungs. These rales cleared completely on the second day. A strong draught of fresh air passing through the room from open windows, warmth to the body and heart stimulants hypodermically were the only measures taken for immediate relief.

The normal temperature was not reached until the third day, when it rose steadily to 100⅘, the highest point reached, on the evening of the sixth day, and gradually diminished from the sixth, with slight feverish action throughout the second week. The pulse fell to 80 on the seventh day and respiration to 20. He voided urine in considerable quantity and involuntarily during the first three days. Bowels first moved by enema on the second day. Through the night of the second day he gradually regained consciousness, became quite rational and began to take liquid nourishment, though he swallowed with difficulty and cold water caused severe pain in the mouth and throat, producing a spasmodic action of the throat. He vomited his milk several times on the third day. For the first two days of consciousness he complained of great pain in his head, which was general, not localized, and also of a numbness of the limbs which continued for nearly a week.

On the morning of the second day my attention was called to a peculiar condition on the back of the shoulder blades and over the sacrum and buttocks, which parts came in direct contact with the easy chair where he was originally found sitting. These parts were thickened and brawny, bright red, hot and very sensitive as though scalded but the brawny thickening was too deep for an external burn or for a recent bed sore. The skin was not blistered, but loosened in a

[1] Read before The Massachusetts Medico-Legal Society, Oct. 7, 1903.

few days, leaving a large denuded surface which healed over very slowly and was sensitive for several weeks. Numbness of the legs disappeared in about one week's time and as this abated he suffered with sharp shooting pains in the left leg and foot, accompanied with motor paralysis of the muscles controlling foot and toes, from which he has not at expiration of twelve weeks fully recovered, though the muscles respond to the faradic current.

It was also interesting to observe the result of paralysis of the vasomotors of this leg, which, when allowed to hang from the bed, or, as in the second week, when he tried to stand up, rapidly filled with blood, the skin becoming turgid and deep purple with distended vessels until he felt faint. The right leg was unaffected, retaining its normal color. This vasomotor paralysis disappeared entirely by the sixth week and also the shooting pains in the limb.

The latest article that I have seen on "poisoning by illuminating gas" is a very clever one by Dr. Paul M. Pitcher published in the *Brooklyn Medical Journal* of May, 1903, in which he concludes that: "The toxic effects of inhaling illuminating gas are due primarily to chemical changes produced in the constituent elements of the blood, this being a substitution of carbon monoxide hemoglobin for the oxy-hemoglobin, so diminishing the supply of oxygen to the tissues. Further that the *direct cause* of most of the symptoms *is* the diminished percentage of oxygen contained in the arterial blood supplying the central nervous system" (compare Haldane, p. 443).

We may concede this effect of carbonic monoxide (the chief poisonous agent of illuminating gas) to *be* the primary cause of the paralysis of the sensory, the motor and vasomotor nerves, producing the variety of symptoms here observed, possibly also the exquisite sensitiveness of the mouth and throat to cold drinks. I am at a loss, however, to account for the peculiar *external* appearances over the buttocks and shoulders. The question naturally arises if it can be due to any local irritation from the poisoned sweat in prolonged and close contact with a surface preventing the free escape of the perspiration from those parts, or is it because the pressure, long continued, has caused a temporary emptying of the blood vessels which, being suddenly relieved from pressure at that part, react *more* strongly and fill to *excess* by reason of the *general* tendency to vasomotor paralysis, causing here such a congestion as to result in inflammation of the skin tissues? The latter supposition seems to me more plausible.

A CASE OF TRAUMATIC CEREBRAL HEMORRHAGE.[1]

BY C. A. ATWOOD, M.D., TAUNTON, MASS.

I PRESENT to your notice to-day a case of traumatic cerebral hemorrhage.

It seems to me that the case may be of interest, not only in its medico-legal relation, but surgically.

[1] Read before the Medico-Legal Society, Oct. 7, 1903.

E. M., a French-Canadian, age forty-four, was returning from the city to his home on an electric car at about 9 P.M., June 7, 1902. While the car was in motion and fearing probably that it would not stop in front of his house, he attempted to save time and distance by getting off. The result was that he was thrown into the road, striking upon the back of his head. The road had recently been repaired by filling with sand and it was soft. He got up and went to his home. A short time after he complained of not feeling very well and sent for his physician. The physician at that time found no serious symptoms. E. M.'s condition, however, became worse and the physician was again summoned, who found him unconscious and pronounced the case one of apoplexy, for which he bled him.

E. M. never regained consciousness and died at 6.40 A.M., June 8, 1902. I viewed the body and performed an autopsy at 3 P.M. There were no visible marks of violence on the body. The symptoms followed by coma before death all pointed to some acute cerebral injury. On reflecting back the scalp, beneath it and near the occipital protuberance of the occipital bone was found a blood clot. The cranium was opened and there was no fracture of the skull. The dura was tense. When opened quite an amount of cerebral fluid escaped. The sinuses and vessels of the pia and brain were full and engorged. In the frontal lobe of the left hemisphere near the longitudinal sinus was a blood clot the size of a golf ball. This was the only lesion found and caused death by cerebral pressure. Macroscopically there were no other lesions.

The theory is that the man fell forcibly on to the back of the head with sufficient momental violence to cause by contre-coup a rupture of a blood vessel in the anterior portion of the brain opposite the site of the original injury.

The Court asked this question: "If there were no external marks of violence and no fracture of the skull how was it possible to state that the cause of death was due to violence or the fall?" The answer was: "The man never having had any cerebral symptoms of disease before, and in this case having come on immediately or soon after an injury, with the finding of an antemortem blood clot beneath the scalp, in the region where he was struck when he fell with force, was evidence enough to consider the hemorrhage of the brain, which caused death, to be due to injury and not to previous disease, together with the fact that there was no other pathological lesion present." *The Court so ruled.*

It may not be too much out of place to mention surgically something about this case. At the present time I believe that some of our more progressive surgeons advise even in the absence of localizing symptoms, if coma and other conditions are progressive, to interfere; that is, to open the skull in the sense of an exploratory trephining. The usual rule would probably be in a case like this, if undertaken, to trephine at the seat of injury. I have thought since if this had been attempted that it would certainly have been a long hunt for the seat of injury.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D., BOSTON.

THE NATURE OF MENSTRUATION.

BANDLER,[1] having studied the function of menstruation by means of microscopical specimens and a survey of the literature, concludes that: "Menstruation is not a process by which the mucous lining of the uterus is thrown off with subsequent regeneration previous to the next menstruation. It is simply the excretion of blood from the decidua menstrualis occurring for the simple and sole reason that there is in the uterus no fecundated ovum.

"Ovarian secretion is the direct cause of this periodical swelling of the mucosa, and it continues, if fecundation has taken place, to exert not alone a local but likewise a stimulating influence on the general and sexual organs. This stimulation occurs to a heightened degree during pregnancy and on removal of the uterus, since the secretion is ordinarily excreted during menstruation. On the occurrence of pregnancy, this secretion causes a further development of the uterus and the decidua, and plays an important part in the process of labor; it stimulates the functions of the breasts, exerts a decided constitutional stimulation, and is the cause of many of the pathological conditions occurring before and during labor."

ECTOPIC GESTATION.

In considering the etiology of tubal gestation Bandler[2] considers that external migration of the ovum frequently occurs, although it can hardly be regarded as causative of tubal gestation.

It seems probable that various inflammatory changes in the tubes are etiological factors in that they destroy the cilia in whole or in part, or diminish their functional activity. Thus the ovum is permitted to remain and develop in the tube. Dührssen found cilia on the abdominal side of the placental site and none on the uterine side, and Veit observed the presence of inflammation in the tube on the uterine side of the ovum.

The processes of gestation in the tube are the same as those in the uterus, modified only by the absence of the decidua and the thinness of the tube wall.

"The theory that the tube ruptures because the ovum is too big is, as a rule, wrong, for cases in the first three months. The various interruptions of ectopic gestation are all the result of hemorrhages, primarily minute. The usual ending, clinically, of the gestation begins with bleeding in the tube. . . . The death of the fetus, as in the case of the uterus, brings about changes which result in bleeding. The primary cause is a lack of decidua. . . . In the uterus the vessels are firmly embedded in the thick decidua and take a twisted course; in the tube the vessels are straight and embedded in loose connective or fetal tissue."

"Rupture of the tube almost always takes place at the placental site, which is the seat of old and new hemorrhages. The hemorrhage and loosening of the ovum which represent the clinical ending of these cases is not the first bleeding, for older ones are usually present."

TOTAL ABDOMINAL EXTIRPATION OF THE UTERUS FOR CARCINOMA.

Krönig[3] considers the chief dangers of Wertheim's radical operation for uterine cancer to be necrosis of the ureter, postoperative cystitis and phlegmon of the connective tissue. To avoid these Krönig does not separate the ureters from the overlying peritoneum, but leaves them attached to a broad strip. He operates as follows: Median abdominal incision; uterus drawn forward with forceps; ligation of ovarian artery at outer end of broad ligament, also of ovarian and tubal branches of uterine artery *en masse* near the uterus. The round ligament and ovarian artery are divided to where the latter is ligated, and the broad ligament split into two layers. An incision is carried through the anterior layer forward and across the anterior uterine wall to meet a corresponding incision on the opposite side; the peritoneal flap is dissected up and the bladder separated from the vagina.

The posterior layer of the broad ligament is then incised parallel with the ureter, which remains attached to the parietal peritoneum where this is dissected free. The vagina is clamped from above and the uterus removed according to Wertheim's technique. The anterior vaginal wall is sutured to the base of the anterior peritoneal flap and the posterior vaginal wall to the posterior peritoneal flap. A rubber drainage tube is carried from the outer end of each broad ligament into the vagina, these tubes providing for possible ureteral complications. The anterior peritoneal flap, sutured only at its base, is drawn over the vaginal opening and its margin sutured to the peritoneum of Douglas' cul-de-sac.

GONOCOCCI IN DEEP LAYERS OF FALLOPIAN TUBE.

Emil Kraus[4] confirms the statement of Wertheim that gonococci are not necessarily confined to the superficial layers of the tubal mucosa, as commonly believed. In his specimen they were found in the epithelium and stroma of the mucosa, in the muscular layers, in the periphery of the tube, and in the subperitoneal tissue.

CHORIO-EPITHELIOMA.

J. Whitridge Williams[5] reviews at length a work on "Tumeurs du Placenta et Tumeurs Placentaires (Placentomes Malins)," by Dr. Paul Briquel.

Briquel gives the name of malignant placentoma to deciduoma malignum or chorio-epithelioma, considering that this form of tumor is derived entirely from fetal elements and that

[1] Uterine and Tubal Gestation, 1903.
[2] Ibid.
[3] Monats. f. Geb. u. Gyn., Bd. xv, H. 6.
[4] Ibid., Bd. xvi., H. 2.
[5] American Gynecology, vol. iii, No. 5, page 480.

therefore the original term deciduoma malignum is a misnomer. Williams considers that chorio-epithelioma is more descriptive than malignant placentoma and should henceforth be adopted.

Briquel has collected 254 cases of this condition from the literature and has carefully sifted the views concerning its histological structure and mode of production.

In considering its etiology, he points out the preponderant part played by the hydatidiform mole, and upon analyzing 217 cases of chorio-epithelioma reported in literature, states that 45.5% were preceded by it, while full-term labor, abortion or very early pregnancy, and tubal pregnancy were observed in 22.6, 33.6 and 2.3% of the cases, respectively.

Briquel thinks we should be extremely cautious in diagnosing the condition solely from the examination of uterine scrapings, as there is a possibility of error. Metastases in other organs are very frequent.

Hysterectomy is the treatment. According to his tables there were 63.15 %of cures in the 114 cases in which this operation was performed. [It is probable that these were all instances of early operation before metastases had occurred, otherwise we should hardly expect such a favorable showing.]

LABIA URETHRÆ AND SKENE'S GLANDS.

Howard Kelly [6] describes anew two well-defined mucous folds at the external orifice of the female urethra which he terms labia urethræ, having first called the attention of the profession to them in 1895. When the labia are well developed they lie in close contact from side to side, forming a longitudinal slit, the urethra as a rule being completely hidden. They are well shown by introducing in the urethra the tip of the conical urethral calibrator when the labia show on each side of the calibrator, also by making downward and outward traction on the upper part of the hymen, when the lips separate and turn down and out.

Kelly considers their function to be protective, serving to keep the delicate urethral mucosa with its glands from constant exposure to leucorrheal discharges and the bacterial flora of the vaginal outlet. They also form an important part of the sexual apparatus as they are impinged upon during coitus and, in cases of disease, are more liable to insult than any other part of the genital tract, especially so in cases of rigid hymen and intact levator ani muscle.

The labia are often absent, especially in old women. In these cases we see a funnel-shaped orifice of the urethra and the urethra gapes exposing Skene's glands and the mucosa.

Kelly thinks he has solved the question as to the physiologic importance of Skene's glands. He considers that their function is partly for the lubrication of the labia urethræ, but mainly sexual. The exact *role* played by the urethral orifice in the sexual act has not heretofore been correctly interpreted. The first contact of the glans penis is with the orifice of the urethra, thus separating its labia and exposing it to any existing infection.

The tendency of the act of penetration is to displace the urethra inward until it lies in the plane of the vaginal wall and the urethlar orifice is carried downward and inward also as the male organ enters the vagina.

As the urethra is thus displaced the orifice becomes everted and the inner mucous surface applied to the dry dorsum of the penis. The function of Skene's glands then is to exercise an office for the urethral orifice precisely similar to that of the vulvo-vaginal glands in relation to the vaginal orifice, to provide a lubricating fluid for protecting the delicate mucosa from harmful attrition. At other times the secretion of the glands serves to prevent drying and agglutination of the delicate urethral labia.

Kelly demonstrates how the little openings of Skene's glands may be exposed, lying posteriorly and just inside the urethra, by using a speculum made of a fine wire hairpin with the legs bent at an angle and grasped with a pair of artery forceps.

He injects diseased glands by means of a syringe constructed by inserting a large hypodermic needle in the end of a two-inch piece of rubber tubing, the free end of the tubing being tied with a string. This syringe he finds much more efficacious than a hypodermic syringe because the amount of the injection can be carefully graduated; with the hypodermic syringe too much fluid is apt to escape and in the case of pure carbolic, nitrate of silver and other cauterizing agents the excess is apt to injure the surrounding vulvar tissues.

Kelly reports two cases in which smegma bacilli in large numbers were found lodged in Skene's glands.

CONDITION OF THE ENDOMETRIUM IN CASES OF UTERINE MYOMATA.

Cullen gives the following description of his findings from the examination of the endometrium in cases of fibroids: [7]

"*Cervix.* — As a rule the cervical mucosa shows no change. Occasionally, however, cervical polypi are present or the cervical glands may be moderately or markedly dilated. In rare instances true cervical erosion, in other words an ulceration of the cervix exists, and now and then squamous-cell carcinoma or adenocarcinoma of the cervix, may be associated with myomata. Where the cervix is much lengthened out the glands are often unraveled. We then note the squamous epithelium of the cervix alternating with that of the unfolded gland.

"*Body.* — Endometritis is occasionally found; when present it is almost invariably associated with inflammatory changes in the adnexa.

"Tuberculosis is not uncommon, but while sometimes occurring independently is usually associated with similar processes in the fallopian tubes.

"Finger-like or dome-like projections from the

[6] American Medicine, vol. vi, pp. 429–431 and 465–468.

[7] Journ. Amer. Med. Asso., Aug. 8, 1903.

mucosa have been seen from time to time, and also other pictures more or less suggestive of a malignant change.

"Adenocarcinoma of the body of the uterus is quite frequently associated with myomata, as we have noted elsewhere. In the majority of cases it was not suspected.

"From an examination of a great many specimens we can lay down the general rule that where the fallopian tubes are normal and where no sloughing submucous myoma is present, the uterine mucosa will be perfectly normal or show simple mechanical changes. The import to the surgeon is that where such favorable conditions are present he can do a myomectomy, opening, if necessary, a large part of the uterine cavity with little danger of infection. On the other hand, if the tubes be adherent, or a sloughing submucous myoma be present, complete removal of the uterus is indicated, the sloughing submucous nodule, of course, being removed some time prior to performing the hysterectomy.

"These results are based on the gross or histologic examination of nearly one thousand cases."

DEVELOPMENT OF CANCER IN MUCOUS POLYPI.

Opitz [8] reports the case of a woman fifty-seven years old, and seven years past the menopause, who applied for treatment because of persistent uterine hemorrhage. Exploratory curretting was done and the diagnosis of adenocarcinoma made. After removal of the uterus a polypus was found near the fundus that had undergone sarcomatous degeneration. Near the surface the tumor showed the typical structure of adenocarcinoma and there were nodules of adenocarcinoma scattered over the endometrium.

The author also reports another case in which a polypus was removed from the cervix of a patient fifty-eight years of age who had had hemorrhages and a foul discharge for several months. The growth proved to be cancerous and vaginal hysterectomy was performed. The tumor showed a connective tissue stroma with large cancer alveoli, the cells being continuous with the squamous epithelium on the surface. Normal glands were found between the alveoli.

TREATMENT OF GONORRHEA IN WOMEN WITH YEAST.

Otto Abraham [9] concludes as a result of chemical and bacteriological investigations and forty clinical experiments that yeast can kill gonococci. The action is of a chemical nature and is not caused by an enzyme. Sterile yeast has this bactericidal action only when sugar is added; living yeast acts by itself, but its activity is increased by the presence of asparagin. For ease of application by the patient, and to keep the yeast cells alive, Abraham makes the yeast and asparagin with gelatin into vaginal suppositories. These suppositories caused no disagreeable symptoms and gave good results in the treatment of gonorrheal diseases of the vulva, vagina and uterus. They affected gonorrheal salpingitis favorably only by preventing repeated infection of the tubes from the uterus.

[8] Zeitschr. f. Geb. u. Gyn., Bd. xlix, H. 2.
[9] Monats. f. Geb. u. Gyn., Bd. xvi, H. 6.

TRANSABDOMINAL, INTRA- AND EXTRA-PERITONEAL URETERO-VESICAL GRAFTING.

Under this title Dougal Bissell [10] reports an interesting case of vesico-uterine fistula following a difficult forceps delivery on which he operated successfully. The patient being very stout a long abdominal incision had to be made. By cystoscopy it had been previously determined that no urine came from the left ureter into the bladder. The left ureter was found terminating in the uterus at the base of the broad ligament somewhat posterior to its normal situation. It was considerably dilated. The ureter was cut off close to the uterus and its end beveled after being freed from its bed in the broad ligament.

A long curved dressing forceps was then passed through the urethra into the bladder until it came in contact with the posterior vesical wall to the left of the median line. The blades were slightly opened and an incision made between them from the abdominal side about three-eighths of an inch long. The points of the forceps were passed through the opening in the bladder wall and made to grasp the free end of the ureter and pull it into the bladder. The ureter was held in place by the forceps until it had been stitched to the bladder wall by eight stitches of intestinal silk.

Drainage into the vagina by means of a rubber tube passing from the bottom of the broad ligament space was established and the abdomen closed tight. The bladder was drained for four days by a block-tin catheter and the vaginal drainage was removed in five days. The convalescence was uneventful except for the formation of phosphatic deposits in the bladder.

Bissell publishes a photograph of the orifice of the implanted ureter in the bladder taken five weeks after operation by passing the photographic apparatus into the bladder (distended by boric acid solution) through the urethra.

It shows a rather large opening of irregular shape and above it, projecting into the bladder, a little eminence in the mucosa which represents the beveled end of the ureter.

The author presents a table of fifty-eight cases of uretero-vesical grafting which he has collected from the literature.

URETHRAL CARUNCLES.

M. Lange [11] has studied fifty-eight cases of urethral caruncle and concludes that they are not true angiomata, but neoplasms of the mucous membrane of the type of granulomata, extremely vascular papillary polypi or telangiectatic polypi of the mucosa. They are differentiated from other neoplasms of the same region by the constant presence of glands, which are often changed by cystic degeneration, inter-glandular hemorrhage and round-cell infiltration; from

[10] Amer. Journ. of Obst., vol. xlvii, No. 2, 1903.
[11] Zeit. f. Geb. u. Gyn., Bd. xlviii, H. 1.

prolapse of the urethra by the macroscopic appearance and by the absence of cylindrical or transitional epithelium upon their surface.

They are not especially frequent at any particular period of life, but after the fiftieth year they are usually papillary polypi; before forty, more granulomata and telangiectatic polypi are found. Gonorrhea may be the cause of granulomata, and gaping of the urethral orifice from senile atrophy may lead to papillary polypi. The cause is usually not ascertainable. The incidental symptoms are the result of a complicating chronic urethritis or prolapse of the urethral mucosa or high insertion of the caruncle.

(To be continued.)

Reports of Societies.

NORTHWESTERN BRANCH OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting held March 10, 1904, Dr. Samuel Wolfe, President.

A Genito-Urinary Symposium.

Dr. H. R. Loux, Chief of Genito-Urinary Clinic, Jefferson Medical College Hospital; Assistant Surgeon to Philadelphia Hospital, read a paper entitled

THE LOCAL TREATMENT OF GONORRHEIC INFECTIONS.

Dr. Loux stated that, although a continuous service of eleven years in one of the largest genito-urinary clinics in America had afforded him unusual opportunities for observation, he had never written a paper upon the treatment of gonorrhea, because no method heretofore suggested proved, upon prolonged trial, to be an advance worthy of commendation. Clinical observation in thousands of cases convinced him that gonorrhea is too often grossly mistreated. He deprecated the use of strong, irritating injections because they aggravate the disease and damage the urethra, and stated that treatment of acute anterior urethritis by irrigation is to be condemned because it causes an extension of the disease by continuity; he quoted statistics, reasons and authoritative statements to show that these opinions represented the beliefs of the leading and most conservative genito-urinary surgeons.

The speaker stated that during the past year and a half the results at his clinic at the Jefferson Hospital and in private practice had been much better than ever before; this statement he based upon the observation of several thousand cases of gonorrhea at all stages. The reasons for this improvement he ascribed to careful local treatment in which he abandoned, absolutely, the use of any drug as an injection which can cause the slightest irritation. Dr. Loux stated that, in a general way, his methods of treatment were as follows: For acute gonorrhea, he prescribes light diet, with very little meat, no fats, fruit or alcoholic beverages, but allows as much skimmed milk as the patient can drink. If the infection is confined to the anterior urethra, he prescribed the injection of 2 dr. of a 10% solution of argyrol, held in the urethra ten minutes; this injection is made in the morning, at noon and at night. Internally, he prescribes capsules of copaiba, cubebs and sandalwood three times daily. This treatment is practiced for one week, during which time the discharge will almost if not entirely cease, there will be no pain or irritation by the injection or upon urination, and the gonococci will disappear.

If, at the end of one week, the urine remains continuously shreddy, a weak solution of astringents is employed, and of these drugs he preferred zinc sulphate, iodide, chloride, hydrastin or berberine muriate, but emphasized that these astringents should not be used during the first week of the disease and never in solutions sufficiently strong to produce pain or irritation.

If the two-glass test shows cloudy first and second portions of the urine, showing the presence of antero-posterior urethritis, he irrigates the anterior urethra with a warm solution of boracic acid in order to remove the accumulated secretions. Then he makes deep instillations of 20% argyrol solutions once daily or on alternate days; the inflammation of the anterior urethra is treated in the manner already described.

The writer quoted from statistics of four hundred cases, treated since July, 1902, by the methods described and stated the advantages as follows: simplicity; the relief afforded the patient from pain and irritation; the extreme rarity of complications; shortened duration of diseases, in that an average time required for cure in acute cases was twenty-one days, whereas by the older methods practiced at the clinic and in private work, the best average obtainable was forty-two days.

Dr. Loux then discussed the treatment of gonorrhea in the female the methods of which are best described by an illustrative case: A. G., age twenty-one, came under observation June 5, with acute vaginitis, endometritis and urethritis for which she had been under treatment in New York for one week. Typical symptoms of gonorrhea were present; microscopical examination positive. The vagina was dilated to full extent by means of speculum. To every portion of the vaginal mucous membrane a 50% argyrol solution was applied, and the same to the urethra by means of a cotton-tipped probe. The interior of the uterus was then freed of accumulated secretions by means of a cotton-wrapped applicator, after which the 50% argyrol solution was applied to the cervix and the body of the uterus. These applications are repeated 2 or 3 times so as to fill the uterine cavity with the solution. This local treatment was carried out every second or third. After eight days no gonococci could be found. For home treatment the patient was ordered vaginal douches of from 2 to 4 quarts of hot boracic acid or normal salt

solutions taken in the recumbent posture. On June 20, there was no discharge or other symptoms of gonorrhea and the patient was discharged. On June 29, she was attacked with acute appendicitis, for which he operated and removed a sloughing appendix. For the subsequent five weeks, during which she was in bed in the hospital recovering from the operation, he made observations every few days of her genito-urinary organs and there was no symptom of gonorrhea. The patient made an uninterrupted recovery and left the hospital.

In discussing *chronic conditions* which result from a neglected or improperly treated gonorrhea, Dr. Loux stated that care should be exercised in adapting methods and means to avoid irritating the already damaged urethral structures. He emphasized the necessity of making routine use of the endoscope and determine its nature.

Chronic follicular urethritis is readily recognized by endoscopic examination and by palpation of the enlarged follicles over a bougie, and is treated by gradual dilatation of the urethra by means of bougies, massage of the enlarged follicles, and by the local application of 25 to 50% argyrol solution to the individual enlarged follicles as revealed by the endoscope. This treatment is carried out 3 or 4 times a week and is by far the most satisfactory method he had ever found.

Most cases of chronic gleet are due to ulcerative conditions of the urethra and in the management of these the endoscope is indispensable. After determining the exact location of the individual ulcerations the method of treatment depends upon whether the ulcerations are sharply localized or whether there is a coexistent general hyperemia of the urethra. In the former case, applications of 50% argyrol solution (through the endoscopic tube) to the ulcerations should be made at least three times a week. If general hyperemia exists, the use of mild astringents should precede the topical application of argyrol, in order to rid the urethra of the mucopurulent accumulations. From four to six weeks of this treatment, with care in the use of instruments, will heal the ulcerations and cure the gleet in the large majority of cases.

Another very common condition is the reduction in the lumen of the urethra by inflammatory exudate, occasioned by repeated attacks of gonorrhea or a primary case of long duration. In these cases, endoscopic examination shows the seat of beginning stricture and the presence of more or less localized inflammation. The management of these cases is extremely important because of the certainty of the occurrence of organic stricture unless the patient agrees to a several weeks' course of treatment. He should report every third or fourth day for the passage of bougies of gradually increasing sizes, followed, if active inflammation exists, by the deep instillation or topical application of 25% argyrol solution, depending upon whether the inflammation is circumscribed or more or less diffuse.

Dr. Loux summarized his paper as follows: Concerning acute gonorrhea, (1) He would strongly deprecate the treatment of acute anterior urethritis by means of irrigation, because of the danger of spreading the disease to the posterior urethra. (2) Irritating injections of any kind should never be used in acute gonorrhea because of the certainty of occurrence of a mixed infection and the extension of the disease, by contiguity, to the urethral follicles. (3) Argyrol, as a non-irritating gonococcide, with a specific effect in allying the symptoms of inflammation, is the drug of choice for injection, and may be used in any strength and at any stage of the disease. (4) Astringents, such as zinc, hydrastin, bismuth and lead, should never be used in the acute stage of gonorrhea, but should be reserved for the post-gonococcus period when the urine remains shreddy. (5) These astringents should not be used in sufficient strength to cause the patient to experience pain or irritation.

To summarize concerning chronic gonorrhea: (1) Endoscopic diagnosis and treatment is indispensable as a routine measure. (2) Silver nitrate or other caustic or irritating applications or instillations should be seldom used, and then only in the most skilled hands and with the greatest care; otherwise there are likely to occur structural changes in the urethra, predisposing to organic affections amenable only to surgical procedures.

The discussion of Dr. Loux's paper was opened by DR. H. M. CHRISTIAN, Professor of Genito-Urinary Surgery, Medico-Chirurgical College.

Dr. Christian complimented Dr. Loux upon the excellence of the paper read and stated that the methods mentioned were, in the main, those practiced by himself. He stated that potassium permanganate is of no value in gonorrhea other than as a simple cleansing agent. Dr. Christian agreed with Dr. Loux that argyrol was undoubtedly the best gonococcide known to-day. After having used that silver salt continuously for more than two years, he prefers it because it never irritates, it is rapidly destructive to the gonococci, lessens the discharge and shortens the duration of the disease.

The speaker stated that it must be borne in mind that we have to deal not only with the gonococci, but with the destructive action of the micro-organism as well; in other words, destruction of the gonococcus does not, by any means, imply of necessity the cure of the disease, as there always remains a condition of catarrhal urethritis which requires a particular line of treatment. If a case of gonorrhea is seen in the early inflammatory stage, where ardor urinæ and chordee are the most annoying subjective symptoms, Dr. Christian orders powders containing salol, sodium bromide, potassium bromide, each two and a half grains, every two hours. At the same time a 5% solution of argyrol is ordered to be used by the patient as a hand injection three or four times daily, the solution being held in the urethra for ten minutes. If the patient can spare the time it is advisable to wash

out the anterior urethra with several syringefuls of warm normal salt solution prior to using the argyrol injection; this line of treatment can be carried on through the second and third weeks. When the subjective symptoms subside, it is sometimes of considerable advantage to supplement the local treatment with the use internally of copaiba and sandal-wood oil. Ordinarily at the beginning of the third week, the patient enters upon the stage of decline, or, as Professor Finger styles it, the "mucous terminal stage" of the disease. In a case going on to recovery, the discharge is now scanty, then muco-purulent in character and containing few if any gonococci, and this is by far the most important stage in the treatment of the disease as regards the patient's future welfare; it is here that experience teaches that we need more than a mere gonococcidal agent. We need here in addition mild astringent lotions to help restore the integrity of the damaged mucous membrane. A good plan now is to use 5% solution of argyrol night and morning, employing through the day some such astringents as zinc, bismuth, hydrastic, lead, berberine, etc. At the beginning of the fifth week, when nothing remains but the well-known "morning drop" and the urine is clear but contains shreds, it is well to use the argyrol solution at night and to use once or twice through the day one of the well-known astringent mixtures.

If in the second or third week the clinical symptoms and the two-glass test show involvement of the whole urethra, the treatment by hand injections is temporarily abandoned. Deep instillations of 10% solutions of argyrol are then employed at short intervals until such time as the second urine becomes clear.

This in general is the line of treatment that the speaker had used at the University of Pennsylvania and his other clinics for the past two years and is one that has given more satisfactory results than any hitherto employed.

Dr. Orville Horwitz condemned the irrigation treatment of gonorrhea and summarized his opinions as follows: The irrigation method of treatment will not abort acute specific urethritis; chronic urethritis and involvement of the deep sexual organs are common sequences; in many instances, in order to effect a cure in the terminal stage of the disease, the irrigation must be discontinued and other methods of treatment employed; irrigation should not be employed in the acute stage of specific urethritis; irrigation of the deep urethra by means of hydrostatic pressure is injurious in the majority of cases of acute gonorrhea, and is conducive to the development of complications; the best treatment we have to-day for gonorrhea is that by means of injection of argyrol solutions which are strongly antiseptic and non-irritating.

Dr. R. O. Kevin, Attending Surgeon, Genito-Urinary Dispensary, Jefferson Hospital, prefaced his remarks with the statement of the French surgeon, Ricord, that "A clap begins and God alone knows when it will end." Fortunately, however, this statement is not as true as it was a few years ago. Dr. Kevin stated that with the use of 20% argyrol solution he had been able to cure 85% of his acute cases in from two to four weeks. He quoted Purdy of London who stated that since the introduction of argyrol into the enormous clinic at the London Lock Hospital, 72% of the early cases had been cured within a month and there had been no relapses after six weeks. Dr. Kevin had been associated with Dr. Loux for several years at the clinic and could corroborate his conclusions. The speaker stated that he had seen so many acute cases cut short that he always practiced the abortive method when possible; this method is as follows: If the patient presents himself during the first forty-eight hours of an attack of gonorrhea, the anterior urethra is washed out with warm water or normal salt solution. Then two dr. of 20% argyrol solution is injected into the anterior urethra and held there for ten minutes; this injection is repeated by the patient every three hours, night and day, for three days. Even if this method does not abort the disease, it always effects a cure in a shortened period, and affords the patient entire freedom from the pain and irritation usually present in an early gonorrhea. If by this means the disease does not show signs of being aborted, Dr. Kevin practices the same methods mentioned by Dr. Loux.

Dr. Orville Horwitz, Professor of Genito-Urinary Surgery, Jefferson Medical College, read a paper entitled

THE RADICAL CURE OF SENILE HYPERTROPHY OF THE PROSTATE; BASED UPON A STUDY OF 145 OPERATIONS PERFORMED BY THE AUTHOR.

Dr. Horwitz stated that the question under discussion has, with the possible exception of appendicitis, attracted more attention in the surgical world than any other subject. It is well-recognized that the danger to the patient with enlarged prostate begins as soon as it is necessary to resort to the daily use of the catheter, and when this period arrives a surgeon should be consulted to supervise the case and decide what operative measures are desirable or necessary. It was emphasized that no one operation was suitable to all cases and that each patient is a law unto himself in the matter of choice of operation.

The two operations which have stood the test of experience are prostatotomy by means of the galvano-cautery (the so-called Bottini operation) and prostatectomy. The speaker stated that the Bottini operation is extremely valuable, safe and always to be preferred to cutting operations in suitable cases. Out of 98 cases operated upon by the author, by the Bottini method, 3 died, 2 of uremia, and 1 of sepsis; all three were very old men. Twelve cases were lost sight of after leaving the hospital but were much improved when last examined. This leaves 81 cases concerning which there was obtained definite knowledge as to results. The ages of the patients varied be-

tween fifty-two and eighty-one years. The speaker stated that his statistics proved conclusively that the earlier the patient submitted to operation, the better the results. Of the total 81 Bottini operations all the patients were either entirely cured or very much benefited; 4 required second operation, and a considerable proportion were treated for several months subsequently for accompanying chronic cystitis.

Prostatectomy, the speaker stated, is regarded as a valuable operation but authorities differ as to when and how it is to be performed. As many as 20 different operations have been suggested. Here, too, the individual case decides methods, choice of operation, etc. The prostatectomies performed by the author were as follows: 3 complete (suprapubic incision); 6 complete (combined suprapubic and perineal incisions); 7 partial prostatectomies (suprapubic incision); 34 complete perineal prostatectomies.

Of the 9 complete suprapubic operations, 2 died, 1 of suppression of urine, 1 of uremia. In all the cases, convalescence was slow; in five cases the ultimate results were all that could be desired.

Of the 34 perineal prostatectomies, 6 died from uremia, sepsis or shock; 6 cases were lost sight of after leaving the hospital; 16 were cured, 4 markedly benefited, 1 unimproved.

Dr. Horwitz summarized the results of observations in his 145 operations as follows:

(1) A routine method is not applicable to the treatment of prostatic hypertrophy; every case is a law unto itself and the treatment will depend on the various conditions presented in each individual case.

(2) The dangers attendant on the daily catheterism are greater than those of a radical operation performed at the onset of the symptoms caused by the obstruction.

(3) The proper time to perform a radical operation is reached as soon as it becomes necessary for a patient to resort to daily catheterism.

(4) The gratifying results obtained by a number of the operations in many cases demonstrates that the Bottini operation is one of great surgical value. It is applicable to a large percentage of cases; which if properly selected has proved to be the safest and best method of relieving an obstruction caused by prostatic hypertrophy. In those cases in which a stone in the bladder is associated with a prostatic enlargement, lithoplaxy may be performed in conjunction with a galvano-cautery prostatotomy.

(5) A complete prostatectomy is justifiable if performed early before the individual is broken down in health and secondary complications have supervened. In early operation the results are most satisfactory, recovery rapid, the mortality varying between 5% and 7%.

(6) A complete prostatectomy in feeble elderly patients with longstanding obstruction and secondary complication, the prognosis is grave and the mortality ranges between 15% and 18%. If the bladder in these cases happens to be hopelessly disabled, the results obtained by the operation are negative. Cases of this description are only suitable for suprapubic drainage.

(7) In 90% of all cases the gland can be readily removed by means of a median perineal incision. The perineal operation recommended by Bryson is considered the operation of choice.

(8) Complete suprapubic prostatectomy is shown to be more dangerous than the perineal operation for obvious reasons. A suprapubic prostatectomy is safer if combined with perineal drainage.

(9) Partial suprapubic prostatectomy is indicated in such cases as where a valve-like lobe exists which interferes with urination, or where there is a partial hypertrophy of one of the lobes.

(10) A perineal prostatectomy is best suited for those cases where the enlargement of the lateral lobes has a tendency to progress towards the rectum, to obstruct the urethra, or project backwards into the bladder.

(11) A prostatectomy is always attended with more danger than the Bottini operation and the convalescence is more prolonged. In suitable cases the latter operation is therefore the one of choice.

DR. EDWARD MARTIN, Professor of Clinical Surgery, University of Pennsylvania, discussed the preceding paper as follows:

He agreed with Dr. Horwitz that, if operation has been advised and consented to, the circumstances of the individual case decided which of the several operations is to be performed. He believed that the Bottini operation has proved of great value and is preferable to cutting operations in suitable cases. He did not, however, advise operation in all cases of enlarged prostate. He recognized the inconveniences and dangers attendant upon the daily use of the catheter, but believed in the value of palliative measures in the majority of cases. He recommended care in the selection of catheters and chose one that enters the bladder with the least force and least pain to the patient. If a soft rubber catheter cannot be introduced, a woven elbowed one is to be chosen. If obstruction or spasm necessitates habitual resort to a metal catheter, surgical intervention is required. When patients use the instrument upon themselves, the hands should be washed thoroughly, dipped in bichloride solution, the meatus washed with the same solution, and be provided with an irrigating bag containing one pint of hot argyrol solution, 1 to 1000. Infection of the bladder is commonly present and should be treated by means of bladder irrigations. For this purpose a fountain syringe, supplied with a catheter, should be suspended two feet above the level of the bladder. The anterior urethra is first thoroughly flushed, after which the catheter is pushed into the bladder and the urine withdrawn. The flushing of the bladder is continued until the return flow no longer contains pus or mucus. The temperature of the argyrol solution employed should be of the temperature of the body or a little above it. When practicable this antiseptic flushing should be done each time the

catheter is passed. If this treatment is inefficacious continuous catheterization becomes necessary. For this purpose a large, soft rubber catheter, or a self-retaining one, is selected and the antiseptic solution introduced; if the catheter is properly introduced, the entire amount of the solution will return. Twice a day the urethra and bladder are thoroughly flushed with the antiseptic solution, the catheter being withdrawn far enough to allow the injected fluid to escape from the meatus, and then being pushed back into its former position.

The success of this treatment depends upon securing free and continuous drainage and this is incident to the permeability of the catheter and its retention in the proper position. When skillfully applied it is one of the safest and most successful means of treating cystitis, which so frequently complicates obstruction from prostatic enlargement.

Recent Literature.

Introduction to the Study of Malarial Diseases. By Dr. Reinhold Ruge of the Imperial German Navy. Translated by P. Edgar, M.B., C.M. (Edin.), and M. Eden Paul, M.D. (Brux.), M.R.C.S., L.R.C.P. Illustrated. New York: Rebman Company. 1903.

The author of this small volume of 138 pages modestly states that he offers little new to the student of malaria. His intention is rather to provide government officers with a brief compendium of important facts relating to this type of disease. The book is, therefore, eminently practical in its method of presentation, and discusses essentially those matters in the investigation of malaria which may lead to confusion on the part of the somewhat inexperienced. The book is well printed, adequately illustrated and should fill the place for which it is intended. Two plates of microphotographs are appended illustrating the endogenous development of the human malarial parasite and certain facts relating to the infecting mosquitoes.

The Complete Medical Pocket-Formulary and Physician's Vade-mecum. Collected for the Use of Practitioners. By J. C. Wilson, A.M., M.D., Physician to the German Hospital, Philadelphia, etc. Third revised edition. Philadelphia: J. B. Lippincott & Co. 1903.

As stated in the title, this small volume contains a series of prescriptions taken from various sources, together with many facts relating to the giving of drugs, and to their dosage, which cannot fail to be of value. Other facts and tests of various sorts are added, which may also be commended. The volume has reached its third edition. It makes no pretence to be anything more than it is. It is attractively bound in flexible leather, and may conveniently fit into a pocket or bag. Throughout the text various blank pages are left for personal notes.

THE BOSTON

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INTRACRANIAL SURGERY.

A matter of constantly recurring interest to practitioners of medicine, whether physicians or surgeons, is the question of the relief or cure of intracranial growths. The surgeon who has come to look for definite curative results from his operative procedures is apt to regard with a certain scepticism the possibility of relief in cases of brain tumor. The physician on the other hand is, if not sanguine of results, still often hopeful that the tumor may be successfully reached or removed, or at least that the symptoms may be so far benefited as to give the patient a relative degree of comfort. The attitude of the surgeon is no doubt in a measure justified by the facts of experience; and the hopes of the physician are not infrequently wholly disappointed by the outcome of surgical interference; nevertheless, this type of disorder demands for this reason the most painstaking study, both on the diagnostic and on the palliative side. Such study is being given as never before. Great numbers of cases are being reported, a few successful, many benefited, and some without material effect, or even fatal, after surgical intervention. It is certainly a branch of medical practice which requires the concentrated attention of surgeons, as well as neurologists, if the best results are to be attained.

We have been gratified and instructed in reading a discussion of the surgery of tumors of the brain by Dr. Charles H. Frazier of Philadelphia, published in a recent number of the *American Journal of the Medical Sciences*. Dr. Frazier finds that the statistics of the last five years give

renewed hope in the surgery of cerebral tumors, due to more accurate diagnosis, earlier recourse to operation, and to decided improvements in technique. On the surgical side the improvements in technique have as a common object the prevention of shock. Stress is very rightly laid upon the necessity of taking additional precautions in operations on the brain. To this end the avoidance of unnecessary exploration, or of prolonged operations, or of excessive hemorrhage, or of rough manipulations, are important. Furthermore, the anesthetic should be given by an experienced man, and circulatory conditions should be frequently observed during the operation. As to methods of opening the skull Dr. Frazier decidedly prefers the dental engine, armed with trephine and drill, by means of which an osteoplastic flap may be most quickly and easily made. The chisel and mallet, which had a brief period of popularity, the Gigli saw, and the recently introduced Stellwagen trephine, are all open to serious objections. The advantages of the dental engine, in Dr. Frazier's hands, are rapidity, ease of control of hemorrhage, and reduction in traumatism.

Precautions against hemorrhage from the very beginning of the operation are insisted upon. Even the blood lost from an extensive scalp incision should be considered, and to this end a tourniquet to the head is strongly advised. The problem of controlling hemorrhage from the brain or from a vascular tumor is a more difficult one. Two courses are open; either to pack gauze into the wound, or, as suggested by Crile, to close one or both carotids temporarily. This latter procedure is apparently not without danger, and in Dr. Frazier's opinion should be reserved only for extreme cases. As practiced also by Cushing, Frazier regards the observation of blood pressure during intracranial operations as of great importance, particularly since it affords information of practical utility as to the advisability of performing operation in one or two stages. The rather startling statement is made that about twenty-five per cent of patients operated upon died immediately from the effects of operation, variously attributed to shock, concussion or "unknown causes." It is now thought probable that the sudden withdrawal of intracranial pressure, leading to the breakdown of the vasomotor regulatory mechanism, is responsible for these too frequent deaths. The following rule is, therefore, worthy of consideration: If there be a very decided fall of blood pressure following the reflection of the dura after an osteoplastic operation, the operation should be temporarily discontinued and completed in a second stage from two to seven days later. This permits the circulatory equilibrium to be restored and removes the essential source of danger.

The discussion of the bulging or hernia of the brain after operation is also of much importance. The immediate bulging on opening the dura is sufficiently explained by the existing increase of intracranial pressure; the consecutive bulging, so often an annoying and dangerous feature of convalescence, is of more importance, since it is probably in a measure avoidable. If the experimental evidence as pointed out by Cannon is correct that cerebral edema is due to traumatism through certain chemical changes in the brain substance itself, it at once becomes of importance to recognize the fact that the various manipulations of the brain by the palpating finger, and by other efforts to discover the existence of a growth, are positively deleterious, since they lead to a swelling and subsequent hernia which might otherwise have been avoided.

Frazier is of the opinion, which must be shared by all who have had experience with this type of case, that palliative operations are wholly justified for the relief of the distressing symptoms when hope of cure is not to be considered. It is, perhaps, in these increasingly frequent palliative operations that special care should be taken by the surgeon to avoid risks of hernia and the consequences of over-much manipulation of the brain cortex. Lumbar puncture as a means of palliation should in the light of accumulating experience certainly be regarded as a dangerous procedure, and if attempted at all, an exceedingly small amount of cerebrospinal fluid should be withdrawn. In general it is concluded that the statistical study of the results of the last five years is encouraging; that the mortality, both immediate and subsequent, has been materially reduced; and that recurrence after removal of the growth is not to be expected more frequently than in other organs.

We have discussed this paper of Dr. Frazier at some length because it seems to us an admirable exposition of the surgical aspect of the general question. If the suggestions made by him could be put into active operation by all surgeons operating on the brain, we feel confident that results would be more satisfactory and the mortality much lessened. We are inclined from time to time to regret that surgeons do not take a more vital interest in the symptomatic course

of these cases, an attitude which would certainly induce a heightened appreciation of the necessity of devotion to the details of operation to which Dr. Frazier calls attention.

THE BOSTON DISPENSARY.

The managers of the Boston Dispensary are making an appeal to the public for money to enable them to add to their present buildings.

This institution has a long and very creditable history. It was started in 1796, eight years before the founding of the Massachusetts General Hospital, and sixty-eight years before the City Hospital, for the purpose of affording medical advice and relief to the sick poor of Boston. It is wholly a private charity entirely dependent upon popular support. In 1883 the present building was constructed, having been paid for by contributions from the charitable public of Boston. In 1900 an addition was completed at a cost of about $65,000, all of which, with the exception of $10,000 contributed by two friends, was paid out of invested funds. The capacity of the Dispensary was doubled, yet to-day it is badly cramped for room. The desired addition is imperatively necessary if the Dispensary is to properly care for the sick poor who come for aid. The estimated cost of the additional land and building is about $100,000.

In 1884 the total visits at the Dispensary were 31,725, or 103 per diem on the average, and the number of physicians was 39. The recipes put up by the apothecaries were 36,704. The total number of visits made by patients at the Dispensary in the year ending Sept. 30, 1903, was 89,207, which is an average of 295 a day. These patients were treated by the 77 physicians and surgeons of the Dispensary, who give their services without compensation. In addition, 20,501 visits were made at patients' homes by the 13 district physicians employed by the Dispensary, and 92,162 recipes were put up by the apothecaries. This indicates that the service has nearly trebled since 1884.

All those familiar with hospitals realize the great development in recent years of out-patient departments, both in numbers of patients and in importance in relation to the community and to the hospitals as a whole. The more modern medical methods, the growth of specialties, necessitate more equipment and more space than formerly. The buildings recently opened, or about to be opened, for the out-patient services of leading hospitals emphasize this proposition. The floor space of this new department of the Massachusetts General Hospital is nearly 80,000 square feet, while that of the Boston Dispensary is but 30,000, and yet very nearly the same number of patients is treated.

MEDICAL NOTES.

New York State Abandons Research on Cancer. — According to the *New York Medical Journal*, after spending $100,000 New York State has abandoned its attempt to find a cure for cancer. The Senate Committee on Finance has reported the annual appropriation bill, and from it has been stricken the provision of $15,000 for the cancer laboratory at Buffalo. The institution has had the benefit of State funds for six years. "We are convinced that no progress is being made in the Buffalo laboratory," said Senator Malby. "The state would gladly spend its money in the effort to find a cure for cancer if it could be shown that any advance had been made. My own impression is that if a cure for this much dreaded disease is ever found it will come through the work of some man who has devoted his life to scientific research and not through any state endowed institution."

This reasoning is of questionable validity, and savors rather of politics than of a progressive scientific spirit. We regret that New York is to be deprived of this relatively small sum of money in its attempt to solve the problem of cancer.

Panama Canal Commission's Sanitary Advisers. — Accompanying the Panama Canal Government Commission, which sailed from New York on the steamship "Alliance" for Colon on March 29, were Col. William C. Gorgas, M.D., and Major Louis La Garde, M.D., of the United States Army, and Dr. J. W. Ross of the Navy, who are to have supervision of the sanitary arrangements on the Isthmus. The Commission will probably remain at the Isthmus about two months and will inspect the entire route of the Canal.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon March 23, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 58, scarlatina 22, typhoid fever 9, measles 212, smallpox 0.

Medical Examiner, Yale Gymnasium. — The position of medical examiner for the Yale University gymnasium has been abolished. The last incumbent, Dr. Jay W. Seaver, held the appointment for twenty-five years.

A NEW TYPE OF LITIGATION. — Suit has been brought against the Boston Elevated Railway Company for damages because a passenger contracted a cold while riding on one of the company's cars. Plaintiff's claim is that during a rain storm she was exposed to wet and damp to such a degree that she contracted a cold therefrom. This exposure, it is claimed, was due to the negligence of the defendants. The defendants naturally set up a claim that the plaintiff assumed such a risk when she entered the car and that they were exercising due care. The judge before whom the case was presented reserved his decision, the importance of which is evident.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending March 26, was 237, as against 201 the corresponding week last year, showing an increase of 36 deaths, and making the death rate for the week 20.48. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 58 cases, 5 deaths; scarlatina, 23 cases, 2 deaths; typhoid fever, 8 cases, no deaths; measles, 194 cases, 2 deaths; tuberculosis, 51 cases, 38 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 32, whooping cough 1, heart disease 23, bronchitis 13, marasmus 4. There were 10 deaths from violent causes. The number of children who died under one year was 44; under five years, 61; over sixty years, 47; deaths in public institutions, 74.

NEW YORK.

OPENING OF MOUNT SINAI HOSPITAL.—The new Mount Sinai Hospital was formally opened on March 15, and among those who made addresses were Governor Odell, and President Fornes of the Board of Aldermen representing the mayor. In presenting the keys Joseph Fox, vice-chairman of the building committee, said: "Our greatest thanks are due to the Jewish community of this city, whose unprecedented liberality in providing the means for the erection of this group of buildings stands as an unequaled achievement in the line of communal work, an honor to our race and a credit to the metropolis." In the course of his remarks Edward Lauterbach, counsel for the hospital said: " These buildings have been erected, but there is the burden of an enormous expenditure that is still to come. There is a distressing spectacle in this city to-day, and it is that kindred institutions are threatened with diminution of their great services because of the lack of funds. That condition can never come to Mount Sinai Hospital as long as the pulse of the great Jewish community beats in unison with that of its directors, whose sacred duty it is to preserve and maintain it." The new Mount Sinai is unquestionably one of the finest and most perfectly equipped general hospitals in the world.

PRIVATE HOSPITALS IN NEED. — Nearly all the large private hospitals in the city (known as private by way of distinction from the municipal hospitals) are at present more or less crippled by a deficiency of funds, in consequence of the increasing demands upon them for the treatment of charity patients. Some of them have therefore been obliged to curtail their work, and retrenchment would seem to be a necessity as regards nearly all these institutions. The case of the New York Eye and Ear Infirmary has already been mentioned in the JOURNAL, and recently the Roosevelt Hospital has closed its special ward for diseases of women. If such retrenchments continue to be made, Bellevue and the allied public hospitals, which are now taxed to their utmost capacity, will be quite inadequate to care for the patients turned away from the private hospitals. During the past winter, however, there has been a very unusual amount of illness to contend against, and it is to be hoped that with the advent of spring the tension on all the hospitals will be materially relieved.

MOUNT SINAI HOSPITAL. — The Mount Sinai Hospital is having trouble in disposing of its old site, on Lexington Avenue, 66th and 67th Streets. On March 11 the Appellate Division of the Supreme Court rendered a decision, reversing the lower court's, to the effect that the corporation cannot give a marketable title to the property, the hospital first built upon the ground, which was in two plots, in 1871, holding the property under leaseholds from the city for ninety-nine years at one dollar rental per year for each plot. In June, 1898, in response to the corporation's petition, the commissioners of the sinking fund of the city granted the property to the corporation in fee simple absolute, with the right to dispose of it at best advantage for the maintenance of the institution. In view of the contemplated removal of the hospital to its new site, the corporation, in December, 1901, agreed to sell the property to David H. Hyman, who paid $20,000 on account when the contract was executed in the month following. Title to the portion recorded as Lot 1, Plot 2, passed March 1, 1902,

when $10,000 additional was paid, together with a mortgage for $51,500. When in July, 1903, the corporation tendered the deed for the remainder, Mr. Wyman refused it, claiming that it was invalid because the leases and deeds from the city were illegal and unconstitutional.

Correspondence.

MAMMEATA.

Suakim, Upper Egypt, March 2, 1904.

Mr. Editor: The enclosed photograph of the wet nurse of the Emperor Menelik's little grandchild may interest such of your readers as are trying to solve the problem of infant feeding.

We have no milk laboratories in this country.

Yours very respectfully,

Mantzaris Bey, M.D.,
(Paris, 1891),
Late Physician to the Imperial Household and at present Chirurgien en Chef of the Suakim-Berber Railroad.



CREDIT WHERE CREDIT IS DUE.

Manila, P. I., Feb. 11, 1904.

Mr. Editor: Vol. cxlix, No. 26, Dec. 24, 1903, on page 707, first column, a writer in the Journal gives a reference to an order of General Grant's Headquarters, Department of Texas, in regard to the protection of the command from yellow fever. The writer does not mention on whose recommendation this order was issued. Is it to be understood that it was of General Grant's own initiative or upon the recommendation of his medical officer? If so the credit for the steps belongs to the medical officer and not to General Grant, who only ordered that which the intelligence of another man had dictated. I do not think that General Grant would have cared to be put into the position of trying to steal another man's ideas, and equally difficult is it to think of him with expert medical knowledge.

Very truly yours,

J. S.

Miscellany.

BUILDINGS FOR THE INSANE.

According to *Charities* nearly a million and a half dollars is now being spent, or is about to be spent, in some nine different states for new buildings for the insane. This is exclusive of New York state where between $600,000 and $900,000 is annually expended for this purpose. It would seem pertinent to inquire whether there might not be an increase in efficiency and decrease in cost if the experience of the different states were in some way made available to one another. We have practically the same classes of patients to be provided for in all cases, and there is little reason why buildings which have been found suitable in Massachusetts should not be suitable in Oregon. The building operations now under way, or already planned, include entirely new institutions at Norwich, Conn., Allentown, Pa., and Parsons, Kans., and additions to existing buildings at Morristown and Harrisburg, Pa., Spring Grove and Sykesburg, Md., Dunning and Watertown, Ill., Lyons View, Tenn., Hopkinsville, Ky., San José, Cal., Eloise, Mich., Las Vegas, New Mex., Norfolk, Neb., and Pineville, La. The buildings include administration buildings, nurses' homes, cottages for convalescents and buildings for almost all other classes of patients. These buildings are probably designed in most cases by architects who have little familiarity with the requirements of the insane or with expert opinion on the subject of their accommodation. It is not customary for architects to specialize on institution construction, and the appointment of an official state architect has probably never been considered in most cases. Problems which have been solved only after many failures in some of the older states are, perhaps, worked out afresh without adequate data. In 1891 William P. Letchworth, a member of the New York State Board of Charities, wrote a valuable paper on "Poorhouse Construction," which was transmitted by the State Board of Charities of the Legislature and was afterwards reprinted and circulated for the information of the public. How helpful it would be if some expert in hospital construction would prepare a treatise on the construction of institutions for the insane, illustrated with plans and elevations and equipped with references to localities where successful exponents of sound theories of construction could be seen and studied.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 12, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,779	493	20.00	27.82	2.47	1.96	.50
Chicago . . .	2,021,086	549	140	24.21	23.12	1.09	3.64	1.63
Philadelphia	1,407,968	709	192	27.91	22.13	1.69	4.37	3.52
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	282	78	22.69	18.44	1.06	1.06	1.06
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,845	—	—	—	—	—	—	—
Pittsburg . .	362,403	140	—	18.57	26.42	—	2.85	7.85
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	75	—	22.66	24.00	5.33	4.00	1.33
Boston . . .	617,850	247	63	23.89	19.43	2.43	1.21	.81
Worcester . .	136,925	43	14	—	18.60	—	—	—
Fall River . .	119,349	28	8	10.71	28.57	—	—	—
Lowell . . .	104,402	26	6	11.55	15.40	—	—	3.85
Cambridge .	100,998	25	6	17.50	5.00	—	—	2.50
Lynn	73,876	19	2	10.52	—	—	—	—
Lawrence . .	72,348	20	6	40.00	10.00	—	—	5.00
Springfield .	72,020	21	3	4.76	4.76	—	—	—
Somerville .	70,413	23	3	17.39	17.39	—	—	—
New Bedford	68,863	30	14	30.00	23.33	6.67	6.67	—
Holyoke . . .	50,538	21	7	9.52	19.05	—	—	—
Brockton . .	46,801	17	3	29.41	—	—	—	5.88
Newton . . .	39,310	10	1	—	10.00	—	—	—
Haverhill . .	39,061	14	2	35.71	7.14	—	—	—
Malden . . .	37,205	8	2	12.50	50.00	—	—	—
Salem	37,188	12	5	—	16.67	—	—	—
Chelsea . . .	36,499	12	—	25.00	16.67	—	8.33	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	14	2	—	21.42	—	—	—
Everett . . .	30,209	13	4	23.10	—	—	—	—
North Adams	29,201	8	—	25.00	12.50	—	—	—
Quincy . . .	26,798	8	2	—	12.50	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	7	1	—	14.30	—	—	—
Brookline . .	23,576	8	1	—	12.50	—	—	—
Pittsfield . .	22,870	5	2	—	20.00	—	—	—
Medford . .	21,956	2	—	—	—	—	—	—
Chicopee . .	21,692	11	3	9.09	—	—	—	—
Northampton	20,314	10	—	40.00	20.00	—	—	10.00
Beverly . . .	15,807	5	1	—	40.00	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	0	—	—	—	—	—	—
Adams . . .	14,745	1	0	—	—	—	—	—
Attleboro . .	14,561	3	—	—	—	—	—	—
Hyde Park .	14,500	4	1	25.00	75.00	—	—	—
Newburyport	14,478	7	1	14.30	14.30	14.30	—	—
Woburn . . .	14,315	2	1	—	—	—	—	—
Melrose . . .	13,819	4	1	25.00	25.00	—	—	—
Westfield . .	13,809	2	1	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	4	1	50.00	—	—	25.00	—
Revere . . .	13,609	4	1	25.00	—	—	—	—
Framingham	13,974	7	1	—	14.30	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	12,324	3	1	100.00	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	4	1	—	—	—	—	—
Weymouth .	11,350	3	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 4,249; under five years of age, 1,074; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 925, acute lung diseases 1,002, consumption 495, scarlet fever 37, whooping cough 14, cerebrospinal meningitis 17, smallpox 6, erysipelas 12, puerperal fever 19, measles 49, typhoid fever 65, diarrheal diseases 107, diphtheria and croup 78.

From whooping-cough, New York 7, Philadelphia 2, Baltimore 2, Pittsburg 1, Boston 2. From smallpox, Philadelphia 6. From cerebrospinal meningitis, New York 10, Pittsburg 1, Boston 3, Lynn, Brockton and Gardner 1 each. From erysipelas, New York 3, Chicago 1, Philadelphia 3, Baltimore 3, Boston 1, Somerville 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,475, for the week ending Feb. 27, the death-rate was 17.5. Deaths reported, 5,137; acute diseases of the respiratory organs (London) 180, whooping cough 163, diphtheria 58, measles 104, smallpox 2, scarlet fever 22.

The death-rate ranged from 6.4 in Hornsey, to 30.6 in Plymouth; London 16.5. West Ham 13.9, Brighton 20.2, Southampton 13.9, Bristol 18.2, Birmingham 22.7, Leicester 13.3, Nottingham 19.7, Liverpool 21.4, Bolton 16.0, Manchester 20.7, Salford 19.8, Bradford 14.4, Leeds 19.3, Hull 16.8, Cardiff 13.3, Rhondda 19.2, Merthyr Tydfil, 25.1, Tottenham 14.8, Bootle 22.8.

METEOROLOGICAL RECORD.

For the week ending March 12, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 6	30.86	28	38	19	74	70	72	S E	S	9	8	O.	F.	0
M. 7	30.06	40	50	31	90	96	93	E	S E	8	19	O.	R.	.20
T.. 8	27.57	46	54	37	93	79	86	W	W	6	13	O.	C.	.56
W. 9	29.72	28	38	18	50	53	52	W	W	13	22	C.	F.	0
T.. 10	29.99	24	31	16	50	36	43	N W	W	18	10	C.	C.	0
F.. 11	29.75	28	31	25	41	65	53	W	N E	5	7	O.	O.	T.
S.. 12	29.64	29	40	18	51	46	48	N W	N W	18	22	C.	C.	0
Av	29.63		40	23			64							.76

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Av Mean for week.

DELAYED PUBLICATION. — The strike, now happily at an end, among printers and pressmen is responsible for delays in issuing the JOURNAL, which will soon cease.

SOCIETY NOTICE.

AMERICAN ACADEMY OF MEDICINE. — The twenty-ninth annual meeting of the American Academy of Medicine will be held at the Shelburne, Atlantic City, beginning on Saturday, June 4, at 11 A.M., and continuing through Monday the 6th.

CHARLES MCINTIRE, M.D., *Sec'y.*

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 19, 1904.

N. M. FEREBEE, medical director. Detached from the Navy Yard, Washington, D.C., and granted sick leave for six months.

A. E. PECK, assistant surgeon. Granted sick leave for two months.

BOOKS AND PAMPHLETS RECEIVED.

Atlas and Epitome of Operative Gynecology. By Dr. Oskar Schaeffer. Authorized translation from the German with Editorial Notes and Additions edited by James Clarence Webster, M.D. (Edin.). F.R.C.P.E., F.R.S.E. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Fourteenth Annual Report of St. Mary's Hospital, Rochester, Minn. for the Year 1903.

Annual Report of the Boston Floating Hospital. Season of 1903.

University of California Publications. Physiology. On the Production and Suppression of Glycosuria in Rabbits through Electrolytes. (Second Communication.) By Martin H. Fischer.

The Principles of Diagnosis of Medical Malingering. By John Punton, M.D. Reprint.

The Trend of Modern Psychiatry and its Relation to General Medicine. By John Punton, M.D. Reprint.

An Atlas of Human Anatomy for Students and Physicians. By Carl Toldt, M.D., assisted by Prof. Alois Dalla Rosa, M.D. Translated from the Third German Edition and adapted to English and American and International Terminology by M. Eden Paul, M.D. (Brux.), L.R.C.S., L.R.C.P. Third Section. New York: Rebman Company. 1904.

Some Subjective Hints of the Morphine Habit. By William Lee Howard, M.D. Reprint.

Sexual Perversion in America. By William Lee Howard, M.D. Reprint.

Treatment in Four Hundred and Forty-two Cases of Movable Kidney without Surgical Intervention. By Charles D. Aaron, M.D. Reprint.

Original Articles.

THE PARTIAL PASSING OF NEURASTHENIA.[1]

BY CHARLES L. DANA, M.D., NEW YORK.

THERE have come of late years much clearer ideas of the nature and relationships of the insanities. The analysis of symptoms has been keener and clinical study has been pursued with scientific methods and with an especial enthusiasm. There has been, in fact, a kind of intellectual renaissance in psychiatry which has aroused deeply the interest and respect of neurologists to whom for many years alienism has stood chiefly for politics and stewardship.

This activity has perhaps excited in us a more careful study of mental states, and it has emphasized to us the fact that while insanity is a psychosis, or morbid mental state, there is a large number of such states that are not insanities, though showing a kinship to them. These non-insane psychoses come to the general practitioner, and perhaps especially to the neurologist, by whom they are put down commonly as some form of neurasthenia, perversity, hysteria or degeneration. It is my contention that a large number of these so-called neurasthenias and all the hysterias should be classed as prodromal stages, abortive types or shadowy imitations of the great psychoses. For in these cases it is the morbid mind that dominates the situation, not a weak eye-muscle, a poor stomach, a heavy womb, uric acid, arterial sclerosis or even an exhausted motor, nerve cell. They are not often, to be sure, pure psychoses; the body is also at fault, but the psyche is in main control and it gives the stamp to the syndrome, directs the prognosis and most acutely solicitates the treatment. Many neurathenias are only a kind of understudy of some particular type of insanity, or they make the forming stage of some major psychosis which, perhaps, under wise direction never fully develops.

With all this I think you will agree, and perhaps even say that it is both old and obvious.

But it is my particular task to try and show not alone that neurasthenia is often or usually a minor psychosis, but to indicate how we can often assign an individual case to its specific group.

For these purposes I must say something about the grouping of these psychoses.

I am not going to make any serious assault upon that mighty Gibraltar of nosology, the classification of the insanities. I have, however, tested some of my most meticulous alienistic friends with certain propositions, and they have yielded a satisfactory acquiescence. I hope they will be as well received by you. The propositions are these: There are, speaking broadly, five types of insanity, each representing a somewhat more instable brain upon which external or internal agencies of an injurious kind have acted. There is underlying all the chief non-accidental or functional insanities, an innate constitutional weakness, instability, or taint. This inherent structural weakness varies in intensity and seriousness with the character of the psychosis. Represent the normal human constitution by a horizontal line, and I think it will be agreed that the mental departures from this line are greatest in about the following order: precocious dementias; paranoia; manic depressive and melancholia; phrenasthenic psychoses; toxic and exhaustion psychoses; organic psychoses.

I am leaving out of consideration the idiocies, imbecilities, and the organic insanities from syphilis, epilepsy and gross-brain disease, for they present another problem.

There may be disagreement about the relative degrees of the teratological deviation in this scheme. I do not insist upon its absolute correctness. It is based mainly upon the different degrees in which the human mind deviates or disintegrates under the influence of the psychosis; and not upon the statistics of heredity.

It will be necessary for me to give some indication of my interpretation of those different forms, though it will readily be understood that I do it only in a most schematic way. I am following as you see in a general way the views of Kraepelin and his pupils, but also the admirable studies of Dercum; and I will confess to my indebtedness to this latter, as well as to the practical help I have got from the physicians of the Psychopathic wards at Bellevue Hospital, where for some years classifications have been put to vigorous tests.

THE PRECOCIOUS DEMENTIAS.

I do not suppose any one doubts that there are dementing insanities which attack people almost always before thirty, and very often before twenty; that they sometimes come on quietly, without noise, and with a long period of pseudo-neurasthenia, and that they sometimes remit and even cease entirely to progress. They are simple or primary dementias.

On the other hand, they sometimes develop with an outburst of violence, followed by confusion, stupor or a katatonic state, with remissions and relapses later. They sometimes come on with delusions and go ahead like a rather rapid type of delusional monomania. But they all, as a rule, tend to dementia sooner or later. We can use for them a multitude of qualifying names, but the main clinical facts are known, and generally agreed upon. They may some day be looked at in a different light, or grouped in a different way. Their present grouping is an easy and satisfactory one to the clinician, and is at the present day very widely accepted.

PARANOIA.

Paranoia is a form of the major psychosis about which there is practically no disagreement, and I need not take up your time with any description of its characteristics. It comes on after adolescence, has a tendency to a cyclical course in which there is at first depression, moodiness, suspicion, egotism and sense of being badly

[1] Read at the meeting of the Boston Society of Psychiatry and Neurology, Jan. 21, 1904.

treated; then follow systematized delusions, and sometimes active explosions of excitement under these influences. The course is long, but there is very little tendency to dementia.

MANIA-MELANCHOLIA, RECURRENT MELANCHOLIA, CHRONIC MELANCHOLIA.

The condition known as mania-melancholia is one much harder, perhaps, for the neurologist than the psychiatrist to accept. For we see much melancholia and very little mania; but there is undoubtedly a depressive insanity which begins early in life, often develops from slight causes, and recurs again and again with slight tendency to dementia.

On the basis of my own experience, I am inclined to out-Kraepelin Kraepelin, and place the chronic melancholia of middle and later life, *i. e.*, the melancholia of involution, in the same group. I cannot here present all my reasons for this view; but I believe it is a common experience to find a patient, who in the forties develops a mild melancholia or an agitative melancholy, to give a history of nervous prostration when in the twenties or a little later on sometimes, of attacks, ftve, ten or fifteen years previous to the one which is brought before me. We see analogies also in the neuroses, such as migraine. Migraine usually develops like dementia, before the twentieth year, and ceases at the climacteric, but often it does not develop until late in life, or having had a few years of display in early life, some new manifestations of migraine or some equivalent neurosis develops about the forty-fifth or fiftieth year. It can readily be understood that what is a pure psychosis as is manic depressive insanity in youth, may easily be made a chronic one by the complications and degenerative changes of later life. The late development of the psychosis suggests that the constitutional taint, which underlies it, is dying out, and hence, we would not get the violence of explosion or the occasional rapid tendency to dementia seen in the early and pure form.

PHRENASTHENIA.

The *neurasthenic* or *degenerative psychoses*, for which I use the term, *phrenasthenia*, form a well-recognized group also. I would make it include the perversions, hysterias, phobias, abulias, amnesias, as well as the compulsions and impulsions, the dipsomanias, morbid fears, and the psychic tics. In his work on the mental state of hystericals, Janet describes most of the phenomena of this group. The word, *hysteria*, however, conveys a different meaning to the minds of most, and the term "phrenasthenia" is one which implies little, and answers the purpose better.

I may be charged with using the term phrenasthenia as a kind of pathological catch-all for the psychopathic, but that is not my intention or view. In this group of persons, there are these dominant traits: (1) a tendency to psychical storms or explosions as in dipsomania, hysteria, or the psychic tics; (2) a tendency to psychical "tonus" or contracture as shown in obsessions, besetments and fixed ideas. There is with all a defect of inhibition which leads the instincts and the subconscious mind-stuff to play havoc with the conduct. The patients are often neurasthenic also, on the ordinary somatic side.

EXHAUSTION PSYCHOSES.

The *exhaustion and toxic psychoses* form a much divided group, but they can be, as Dercum states, classed pretty closely together under the delirium, confusion, stupor syndrome.

I presume that most cases of neurasthenia proper, occurring in adult and middle life, are exhaustion neuroses, with often some suggestions of the analogous psychosis. Thus the extreme nervousness is the nerve equivalent of mania, the inability to work and concentrate the mind often amounts to a confusion; and the absolute physical lassitude and weariness is the analogy of the stupor and dementia of a toxic insanity. This, then, is my schematic view of the great groups of insanities of which much of neurasthenia is a prodrome, a *forme fruste*, or an imitation.

Perhaps all that I ought really to assert is what you will readily grant, *viz.*, that among neurasthenics, currently so-called, we can find:

(1) Early stages and abortive types of dementia precox.

(2) Mild attacks of manic-depressive insanity, with exhaustion and retardation of thought, but not much melancholia.

(3) Many *formes frustes* of the neurasthenic insanities, with doubts, fears, impulsions, especially with obsessions and fixed ideas, drug and alcohol tendencies, and even sexual perversions.

(4) Mild forms of paranoia, in its depressive and hypochondriacal stage.

(5) Early attacks and mild attacks of the melancholia of involution.

(6) Early stages of paresis.

(7) Slight grades of the exhaustion psychoses, following typhoid fever, grippe, prolonged alcoholic indulgences, or non-paretic syphilis.

One might admit this much and yet be unwilling practically to grant that most neurasthenias are mental cases. But there are some general as well as specific and technical reasons favoring this view. It is notorious, for example, the number of "cures" that exist for the alleviation of the neurasthenic state. The patent medicines, suggestive and pedagogical therapeutics, like the New Thought, Mental Healing, Christian Science, Osteopathy, electricity, water cures. We all remember, also, the vogue at one time or another of specialistic cures by treatment of eyes, stomach, uric acid and the pelvic organs.

All this variety and excess of therapeutics certainly suggests either no disease or a mental one.

I have been watching for a case of neurasthenia due to excessive physical work alone, but I have never seen it. It does not occur, for example, as the result of long and hard athletic work, nor in bicycle racers, or six-day pedestrians, or in firemen and stokers. It is always the psyche that has to be hit in order to get a neurasthenia.

I am not, however, especially anxious to argue

this point, for I think the truth will be reached finally by a close study of symptoms.

I shall be very much disappointed if those who hear or read this paper should flippantly express their interpretation of it by saying, "Well, he just wants to make out that all neurasthenics are crazy people and ought to be locked up." Yet I can hear something of this in the air.

This is very far from my meaning. I would emphasize, rather, the fact that there are many important psychoses or morbid mental states that are not at all insanity, and never will be. Nevertheless, they are not perfectly healthy minds, and their maladies or sufferings are largely due to the mismanagement of their minds, rather than their bodies. *Mensa sana* means almost always *corpus sanum* so far as functional conditions go; and I say this at the risk of having Mrs. Eddy claim me for her own.

Furthermore, I would insist that these minor psychoses which make or keep up neurasthenia are generally manageable things. If one third of the major psychoses are curable, we can say that three fourths of the minor groups are so. But they are much more curable if we know which is the organ most in need of therapeutical attack.

And here is where the importance of recognizing the presence and nature of a psychosis comes in. We know that in phrenasthenia the trouble is a chronic one, with some tendency to a cyclic course. But in this phrenasthenia we need, above all, pedagogical treatment, isolation and a routine of regular life, while treatment makes them worse by intensifying the obsessions. In the early neurasthenias that suggest, at least, a precocious dementia, very prolonged rest is absolutely needed.

In melancholia-mania, the malady we know will run a course, and we can predict a cure, often in a short time; but we can also predict and try to avoid a relapse.

In the melancholic neurasthenia of later life, we have the hardest problem to meet, and must prepare the patient for it. Here recovery is likely, but it is slow, and not ever quite perfect.

Without going into further analysis, I should say that many neurasthenic psychoses can be recognized if we rememper these facts:

(1) Neurasthenia, strictly speaking, very rarely occurs under twenty. What we see then is pseudo-neurasthenia of dementia precox, or dementia precox itself; slight attacks of recurrent melancholia or manic-depressive insanity; or some early development of a phrenasthenia, showing itself in chronic headache, spinal irritation, hysterical seizures, fears and obsessions.

(2) Depressive forms of neurasthenia with mainly symptoms of exhaustion, and retardation of thought recurring, and coming on often without adequate cause or many bodily symptoms are forms of manic-depressive insanity.

(3) Neurasthenia in the luetic is often, not always, a precursor of paresis.

(4) The depressive and anxious types of neurasthenia occurring after forty or forty-five are usually mild forms of the melancholia of involution.

(5) The neurasthenias occurring after severe illnesses, toxemias and shocks, show sometimes signs of the confusional psychosis.

(6) So-called congenital neurasthenia or chronic hypochondria, is usually a dementia precox, paranoia or phrenasthenia.

Cut out all the foregoing, and one has cut out about 50% of neurasthenia. What is left is usually not a general neurasthenic state, but a local disorder. So that if one follows it up very closely we may yet end in finding that there is no such thing as neurasthenia at all. These are neurasthenic psychoses, and there are enfeebled nervous mechanisms, so that people have irritable or weak hearts, stomachs, legs or bowels. But this is not a general neurosis or neurasthenia.

I must confess that I may be charged with dealing disrespectfully with our one great national malady. You may say that if half our neurasthenics are just of fancy bred, and the other half not neurasthenics at all, America has been deleted of one of its most distinctive and precious pathological possessions. If no longer able to claim any disease as specially our own, or point with pride to a national and neurasthenical syndrome, there is removed, we may be told, an important stimulus to patriotism and racial solidarity!

I do not think, however, that I shall seriously jar the national pride. The removal of the term neurasthenia from the list of easy diagnoses will have its most tragic effect on the European professors whom our wandering plutocracy consults; and by whom the diagnosis of the "American Disease" is usually made as the patient is announced.

I am not, however, insisting that neurasthenia, *i. e.*, nervous exhaustion, is not a real thing. I think it is, and that the term will still have to be used.

But I specially urge that the mental state of these patients be carefully examined. The neurologist needs the help of the psychiatrist here, and I hope it will be given. I doubt if neurologists, as a rule, know enough of psychiatrical methods to make always the proper diagnosis of neurasthenia. This ignorance, however, will not last long and then there will develop a readjustment of our neurasthenic states with a knowledge of the psyche as a basis as well as of the *soma*.

It is in the hope of promoting this object that I have written this paper.

Appendix.

Description of the different types of psycho-neuroses.

The task of describing specifically the character of the different types of neurasthenic psychoses is difficult, and I do not pretend that I can accomplish it here. I shall in fact only try to point out some features of the more prominent groups.

A majority of the cases commonly called neurasthenia should be called "psycho-neuroses." This is a general term meaning nothing

much more definite than that the patient has a functional disturbance of the mind and nerves.

But a large number of these psycho-neuroses can be easily recognized as cases of phrenasthenia, of the explosive type like hysteria and dipsomania, or of the obsessive type.

A considerable number are cases of the mild or recurrent melancholia type, and they really belong to manic-depressive insanity, or to its allied form, chronic melancholia of involution. A smaller number of cases belong to the pseudo-neurasthenia that precedes or substitutes itself for dementia precox. A small number will be found to be really abortive types of paranoia. I have here arranged the psycho-neuroses in their order of frequency, at least, as I have observed them. Finally, most real neurasthenias are exhaustion and toxic neuroses or local neuroses. Thus we would have:

True neurasthenia: usually an exhaustion or toxic neurosis or local disease.

Psycho-neuroses: including: (1) pseudo-neurasthenia of dementia precox, (2) *formes frustes* of paranoia, (3) the same of the mania melancholia psychosis, (4) mild types of phrenasthenia, (5) mild types of exhaustion psychoses.

The *Pseudo-Neurasthenia of Phrenasthenia* — the most important and frequently seen psycho neurosis probably is that which have I called *phrenasthenia*.

This condition comes on in its hysterical and explosive form at the period of puberty and adolescence; but in its more chronic and obsessive form later in life, *i. e.*, after maturity. It occurs in women somewhat oftener than men. While congenital conditions are fundamental in the cause, the exciting causes are oftenest overwork, shock, worry and exhausting diseases and toxemias.

The condition is chronic, but tends to improvement and often cure. It runs a very variable, but not a regular or cyclical course. There is no tendency to dementia; and the patients are often active and intelligent; their social instincts are good, and they have not any deep or dominant melancholia. The memory is unimpaired, and the power of work often considerable, but concentration of mind is difficult, and there is a weakness of will and lack of initiative amounting to abulia. The hunger and sexual sense may be obtunded, or exaggerated; and there is usually an exaggeration of the sensations of pain, both physical and psychical. There are sometimes crises and prolonged conditions of what is called "nervousness"; this is a kind of pressure-activity, indicated by a feeling of restlessness and desire to do something or say something all the time. In the latter characteristic *place aux dames*.

Sometimes we get even suggestions of negativism, *i. e.*, a stupid refusal to react to sensible reasoning and advice, and the suggestion of any particular plan at once arouses antagonism and desire to do the opposite. Who has not met this person both in lovely woman and unlovely man? There is sometimes a marked diffidence and refusal to take part in ordinary social life. For the social instinct, though present, is crowded out by morbid self-consciousness and fears.

The phrenasthenic woman often shows an extremely morbid anxiety over her children, her husband and her household affairs, so that domestic peace is difficult and domestic service an especial trial. Affairs are run with a tremendous waste of energy; and, after all, not always well run, nor are the children well brought up, for the untrained phrenasthenic is over-rigid or over-indulgent, and in general makes a poor mother.

It is this class of people who get fixed ideas regarding their own malady or doctors, and become slaves to medication, or run off to Christian Science or some particular fad of treatment or diet. Sometimes the compulsion seizes them to go to bed, and they, on any excuse, run home, take off their clothes and soothe their fears between the sheets.

On the somatic side we find many of the ordinary symptoms of neurasthenia, such as periodical headache, occipital pain, and head pressure feelings of cerebral congestion, and a kind of subjective vertigo, which is really only a kind of crisis of apprehension. It is these patients who sometimes have long-standing and inscrutable headaches and local pains. They "never remember being without a headache" or pain in the back. No form of treatment has ever helped this. It is increased by exertion, mental or physical, and yet is not cured by rest or by anything but moral measures, including especially neglect.

Some cases of spinal irritation belong to this group, as well as that symptom which has been called topoalgia. It is not to be forgotten that some chronic headaches and spinal pains, however, are due to bad eyes, or to weak spinal muscles, or pelvic irritations. Nor do I deny that the soma may be the prominent defect in some patients who along with an obsessive brain, have small hearts, weak stomachs, and over-active thyroids, or perhaps a poor adrenal, and sphlanchniac system.

Naturally, these persons are sensitive to stimulants and rich foods, and are thrown into crises by moderate indiscretions. They are helped but not cured by washing the stomach, giving tonics, and so forth, but it is the "psyche" that really requires treatment.

The trouble is, in fine, a chronic non-dementing neuro-psychosis with tonic and clonic "seizures" affecting the intellectual field with fixed ideas, the emotional with crisis, fears, jealousies, doubts and morbid apprehensions; the instinctive with perverted impulses and the volition with periods of foolish action or actual paralysis.

I am not trying to describe that very easily recognized group of phrenasthenics who have serious phobias, doubts and almost insane obsessions and impulsions. Their characteristics are well-known and are sometimes so marked as to put them among the major psychoses. Mysophobia, doubting mania, belong most typically to this class.

It is the more subtle types that go often unrecognized as anything more than neurasthenic or

hysterical or hypochondriacal, though they really belong in the same great category.

The Pseudo-Neurasthenia of Melancholia. — The mania-melancholia syndrome is only an outfit of mental symptoms that may affix itself on any morbid and unstable brain. It occurs in the dipsomaniac and in the paranoic, it occurs as a phase of paresis, and in exhaustion psychoses. But it fits with particular purity of type a certain constitution coming nearest to that of phrenasthenia or the neurasthenic psychosis.

This syndrome does not always include a real melancholia or develop into a mania. Its principal underlying condition on the melancholia side, may be only exhaustion, retardation of thought, indecision and depression. There is a real and horrible melancholy, at times; at others, only an undercurrent of apprehension which stands for melancholia, and there are occasionally periods of nervousness, restlessness, and desire of action which stands for a mania. But the patient, on the whole, looks like a simple case of cerebral exhaustion, with inability to concentrate or use the mind, with simple " anhedonism," or loss of pleasure, sense and of interest in the work of the world, to which are added moods of melancholy, insomnia, pains and cerebral discomfort. The slightest effort seems impossible, and the smallest task a mountain of labor. The patient cannot read without fatigue or sense of nervousness, or even nausea.

Often the patients are girls or young women who break down at school, recover, and break down again in the twenties; perhaps during this decade they only have short periods of depression lasting a few weeks, but recurring every few years. Finally they become well, but sometimes develop new attacks at the period of the climacteric. These attacks are now more severe or, at least, more chronic, and are associated with many somatic symptoms due to arterial sclerosis, vasomotor and glandular disturbances, and the other frailties of the climacteric. Sometimes the attacks which occur late in life take the form of a hypochondriacal melancholia, because there are now real somatic disturbances which turn the mind upon the individual's own condition. The patient thinks he has a bad stomach, or liver, or heart, or is greatly worried over the parasthesias of arterial sclerosis and rheumatism that appear at this time. The characteristic of this psycho-neurosis in early life is a tendency to come on without much cause, and to recur without any marked physical disease or disability. The cases occurring at and after the climacteric are more obstinate and are associated with the somatic symptoms of the degenerative period of life.

The patients have no fixed ideas, or compulsions, nor much of the selfish egoism of dementing types of psychoses. There are sometimes periods of exalted feeling, of good health and spirits, with a flow of ideas and talk, and an exuberant delight in being well again. This leads sometimes to excesses that bring on exhaustion and depression.

Most cases perhaps are those which we see only in this later stage; and inquiries bring out the fact that at school or before marriage, she had one or two attacks of nervous prostration.

It is the fact that we see cases shading all the way from simple depression-exhaustion to real recurrent melancholia, that I consider these cases to belong to the psychoses.

The Pseudo-Neurasthenia of Dementia Precox. — These are neurasthenics of early life occurring under the age of twenty or twenty-five. There may be a bad mental heredity, and alcholism in the father is often noted. They include the cases of prodromal pseudo-neurasthenia, and the arrested and abortive types that pass later in life, perhaps, as chronic or congenital neurasthenia: Persons who achieve some success in early life, but have to husband their resources at every point or they break down.

The basis of all is a good brain originally, but one which at the time of maturity ceases to develop or to work well any more. It does not go to pieces, but its evolution ceases. It is not a short-lived, but an arrested organ.

Perhaps some cases get nearly well, for in a way, dementia precox is an exhaustion psychosis, and if the exhausting condition is quickly removed and long rest given, the brain may reassert its capacity to live. I am an optimist.

In pseudo- or prodomal, neurasthenic cases there is a period of two or three years in which a young man or woman shows symptoms of mental dulness or negligence. He does not do his work as well as formerly; and shows indifference to reproof and consequences. He has some ordinary neurasthenic symptoms, such as headache, insomnia, and cerebral parasthesia. He sits up late and sleeps very late. His conduct shows indecision and abulia, a loss of mental grasp and capacity to understand or do the work formerly attempted. The patient will spend hours in trying to finish a letter, or read a few pages in a book, or finish some calculation. He is often strong, physically, and will stand the work of a summer camp, of sports, or of hunting expeditions; eventually, however, this also tires him. The trouble may begin in a somewhat different way: A young man who has been working or studying steadily, rather suddenly finds he can't do his task. He goes home and lives with his family, simply refusing to work. He has not many complaints to make, but he simply cannot follow systematically any line of thought or industry. He sits at home a great deal, reads or pretends to do so, and lies in bed a great deal. His future depends on his situation in life, or the means, sympathy and affection of his parents. He is sent to travel, or to a life on a ranch, or in the woods. If urged too much, an explosion occurs, and his real malady is recognized. But if left alone, he continues his vegetative life, receiving casual treatment for his neurasthenia. After one, two or three years, perhaps, excitement or delusional conditions develop, and his trouble is recognized.

I am sure that there are types in which the

dementing condition is even slighter than this. The progress is really arrested for many years, and the patient is simply a rather useless homebody, doing nothing, not suffering much, helping a little about the house, showing aversion to real work however, complaining of his head, his stomach, probably sexually weak, developing some delusional ideas or vagaries. If he is originally serious-minded and brought up to ideals of duty and work, he makes a serious fight, but a little work causes profound exhaustion, and he has to give up. These patients do not have the egotism of paranoia. The malady runs a slow course; there may be periods of depression and apathy, suggestive to the watchful of a stupor, but there is not true melancholy. The great characteristic is the mental exhaustion and exhaustibility; the difficulty in attention and decision. It is an abulia from sheer weakness, however, not the hesitation of the doubting mania between two motives, or the indecision of fear and apprehension. The mental depression as stated is not acute, and if present is simply the psychic pain that comes from exhaustion.

To sum up: It is my contention, first, that many cases of dementia precox are in the early stages considered neurasthenics; but also that there are abortive types of dementia precox which pass through life or many years of it, with the dementia arrested, and are classed simply as neurasthenic. They are seen in college men and young professional men who break down suddenly after starting out brilliantly and are never heard of, becoming perhaps, breadwinners and fathers and mothers of families, but never amounting to anything, and always working at a disadvantage. They have no initiative; they break down often, and have to rest and limit their work.

Finally, neurasthenia occurring under twenty is rarely neurasthenia. It is a dementia precox, or a recurrent melancholia, or the exhaustion of a phrenasthenia, and it is rarely paranoia. Neurasthenia occurring at this early period with a bad family history, including family alcoholism, should make one very suspicious of a serious malady.

THE CYSTOSCOPE — ITS DIAGNOSTIC VALUE.[1]

BY A. M. WOSE, B.S., M.D., SYRACUSE, N. Y

By cystoscopy of to-day is meant the introduction of an instrument through the urethra for a visual examination of the bladder. This instrument, as you know, is called the cystoscope.

Like other articles of utility the cystoscope has its cycle of development. It is divided into two epochs:

(1) Instruments constructed on the plan of a tube passed into the bladder with the source of light reflected from a mirror without.

Bozzini at Frankfort in 1806 devised the first cystoscope. Then followed Segalas in 1826 with a modification, Bombolgini and John D. Fisher in 1827, Desormeaux in 1863, Cruise in 1865, Stein, 1873, and Gruenfeld in 1874. A question at that time was the choice of a light to be reflected; one advocated gas, another — petroleum, gazogen or magnesium — light. The open tube gave rise to difficulty from the fact that the contents of the bladder flowed out on introduction, and that the bladder-walls collapsed soon after, thus limiting the time and field of observation. The use of fenestrated tubes overcame this difficulty. All this, however, found its application in the female alone; for, at no time did this reflected light suffice to examine the male bladder.

This state of things changed on the introduction of the electric-light into therapeutics. Here commences the

Second epoch — that of the modern cystoscope.

Dr. Julius Bruck, Jr., of Breslau in 1867 was the first to use the platinum-light in medicine. He devised two methods for its use:

(1) What he called stomatoscopy, or direct illumination of a cavity oy a glowing platinum-thread.

(2) Diaphanoscopy — indirect illumination or translucency of a cavity by a glowing platinum-thread.

Ten years later Nitze returned to Bruck's method. For he believed that an organ like the bladder, connected by a long narrow canal to the outer surface of the body, could be satisfactorily lighted by passing the light itself into it. To accomplish this Bruck had already surmounted many perplexities for him as he had used the glowing platinum-thread, cooled by a stream of water, to investigate the aural cavity; and, as said, by introduction into the rectum to illuminate the bladder. Nitze then contrived an instrument not unlike an endoscopic-sound with Bruck's arrangement of lighting and cooling to be passed through the urethra into the bladder. On account of the narrowness of the lumen of the urethra, the field of vision of this cystoscope was no greater than the aperture of the sound used. On a suggestion from Nitze to enlarge this field of vision, an optician — Beneche in Vienna — constructed a tube with a combination of lenses comparable to those of a terrestrial telescope. After a thorough trial in Von Dittel's clinic, Nitze described and demonstrated this instrument at a meeting of the Medical Association of Vienna, March 9, 1879. So many were the difficulties in the use of his instrument, it found few adherents.

Dittel, however, added new life to this method of investigation. In place of the glowing platinum-thread, he believed he could substitute Edison's incandescent-light, which came to his notice for the first time in 1880. For the cystoscope this light was its greatest boon. Thus the former cumbersome stream of cool water became superfluous, and in 1886 Leiter of Vienna completed an instrument, which was small in caliber, simple in construction, and handy in use. In the beginning of the year 1887 the problem of the cystoscope was solved.

The fundamental principles, as you know, in the construction of all modern cystoscopes is: the arrangement of an electric light on the vesical

[1] Read before the Onondaga County Medical Society of New York State March 8, 1904.

end of a catheter-like metallic instrument with the optical enlargement of the field of vision by means of a prism, mirror and lenses. These instruments have a short Mercier curve with the lamps usually detachable, while the shaft of the instrument carries the optical apparatus, and a small wire to complete the electrical circuit. All the cystoscopes constructed by Nitze, Casper, Gueterbock, Berkley-Hill, Fenwick, Boisseau du Rocher, Leiter, Loewenstein, Lewis or Albarran are of the same principle. The improvements in the instruments in the hands of these experimenters have been numerous; each and all, likewise, precious adjuvants for the diagnosis or treatment of the great number of the maladies of the urinary tract.

The cystoscope of to-day is employed in two classes of cases:

(1) For diagnosis, by the ideas it gives of the character of the vesical mucosa and the products of secretions issuing from the ureters.

(2) For therapeutics, that intervention which it permits to effect directly on the ureters or the mucosa itself.

Thus there are simple cystoscopes, more complex ones, as those given to irrigation of the bladder or for the catheterization of the ureters, operating cystoscopes with a cold wire or a galvano-caustic loop, photographic-cystoscopes, and the cautery-cystoscopes employed in the operation of Bottini.

In spite of the perfection and the ingeniousness of the instruments themselves, cystoscopy remains a delicate and often difficult undertaking. A certain number of causes in fact may complicate its employment, and so introduce an error in the appreciation of the results obtained: First of all insufficiency in the brightness of the light always restrains one, which by too deep an introduction of the cystoscope obscures the view entirely, and if in contact with the bladder-wall may burn it with the consequent pain and movement of the patient (this latter property has been irradicated by the use of the new so-called cold lamps. These do not become heated). The arrangement of the apparatus — perhaps an imperfect contact in battery, or rheostat — diminishes the light or momentarily closes the circuit which prevents a just interpretation of that portion of mucosa observed. Immobility of the instrument after introduction, as rotation of the cystoscope on a longitudinal axis, or the movement of the ocular from side to side, forward or backward, limits the field of vision and a nicety of adjustment of the focal point to a clear image. Narcosis of the patient is generally necessary.

In order to investigate the bladder by means of the cystoscope the urethra must be passable. Strictures, a narrow meatus, or enlarged prostate must be calibrated or otherwise treated. In prostatic hypertrophy the use of the cystoscope becomes many times very difficult, and one should hold himself here to the strictest indications in its employment. The bladder must allow a moderate distention. Here a contraction or malformation embarrasses one. Likewise acute cystitis, tubercular cystitis must be given due consideration before any cystoscopic investigation. The bladder must contain a transparent medium to obtain a clear view of the intra-vesical relations. This medium is water or air, the former is at present most frequently used. Purulent and catarrhal secretions or conditions with hematuria must be repeatedly irrigated until the wash-water runs clear, otherwise one has a dim and imperfect reflection from the mirror.

It can but suffice to mention briefly the most important vesical observations by means of the cystoscope:

The cystoscopic picture of the normal bladder appears strikingly pale, whereas the mucous membrane after a suprapubic cystotomy is usually dark red in color. At the base of the bladder one finds the ureteral openings, which are often in diseases of the pelvis of the kidney or the kidneys, reddened, swollen, and edematous. In renal hematuria or pyuria the blood or pus can be detected coming from the ureter or ureters. The cystoscope is of the greatest aid to differentiate the origin of intermittent hematuria, whether the blood comes from the kidney, or its pelvis, the bladder, prostate, or urethra. In the male a question of import, many times, is the contour and relation of the prostate-gland. The cystoscope gives positive evidence in hypertrophic conditions of the median or lateral lobes.

It stands for reason that the cystoscope renders the greatest possible assistance in the differentiation of acute or chronic cystitic conditions, tumors of the bladder, whether they are infiltrated, papillomatous, carcinomatous, or papillary excrescences; and such plastic objects as foreign bodies or vesical calculi. In the search for a stone the cystoscope is always a valuable and often an indispensable diagnostic aid, as it reveals a vesical calculus, which by sounding may fail to be discovered. After litholapaxy, the cystoscope is used in search of remaining fragments. There may be a stone in a diverticulum of the bladder-wall, while the lithothrite is contra-indicated, the cystoscope leads one to the proper treatment. Also such rare conditions can readily be detected as: troublesome cicatrices or presence of ligatures after operation on the bladder; wounds or lacerations of the bladder-wall after contusions; the presence of a fistula; the point of perforation into the bladder from abscesses in the surrounding viscera, as in appendicitis, pyosalpinx, perinephritic abscess; and likewise in malformations as the remains of the urachus and the like. In gynecology the cystoscope gives additional insight to the pathology of displacements and malpositions of the uterus and adnexa, the striking appearance of the base of the bladder and ureteral openings in cystocele, the transformation of the bladder by a gravid uterus, and in uterine neoplasms, as carcinoma and the like.

In those rarer cases where the urethral cys-

toscope cannot be employed, an instrument has been constructed of late with a trocar, which allows a suprapubic puncture of the bladder, and at the same time a cystoscopic investigation of this viscus.

THE IMPORTANCE OF THE CYSTOSCOPE IN THE DIAGNOSIS OF DISEASES OF THE KIDNEY BY MEANS OF CATHETERIZATION OF THE URETERS.

For the progress in the surgery of the kidneys seen in the last ten years, we are much indebted to the use of the cystoscope in the catheterization of the ureters. A question often of first importance to the surgeon in contemplated renal operations is, whether his patient has one or two kidneys. Although the presence of only one kidney is a rarity, nevertheless, such cases are recorded and likewise not a few of them for the first time at the necropsy, after the removal of that kidney. Here the cystoscope with the catheter leads to positive evidence in diagnosis and for the subsequent treatment. One can determine the existence of this kidney, if it is healthy or diseased, or if its functional activity is impaired. As above mentioned one can differentiate by means of a simple cystoscope the diseases of the bladder from those of the kidneys by the changes taken place in the ureters or about the ureteral openings. With the catheterizing-cystoscope one is in a position to collect this urine from both kidneys, as it were, and separately subject it to the important microscopic, chemical and cryoscopical analyses.

For the collection and segregation of urine from each ureter, there are such instruments as those advocated by Harris, Downes, and more recently, those of Cathelin and Luys. These instruments are more applicable to the female, for the slightest enlargement of the prostate-gland lessens their value in the male; and likewise, in such affections of the bladder with purulent, catarrhal, and hemorrhagic secretions. Thus the problem to separate the urine of both kidneys in a complete and unobjectional method is solved only by the direct catheterization of the ureters; or, best of all, by the catheterizing cystoscope.

The catheterism of the ureters by the cystoscope is not infrequently crowded with difficulties, for one may deal with those rarer cases where the ureteral openings cannot be detected, for example: cases with a tumor-like swelling of the mucous membrane of the bladder in chronic cystitis, prostatic hypertrophy with excessive enlargement of the median or lateral lobes, a trabeculated bladder, and one with other deformation or deformity.

The combination of the x-rays with a catheterizing cystoscope mounted with a silver ureteral sound or a catheter loaded with a mandrin gives the following assurances in the radio-graphic plate: (1) absolute confirmation of course of ureters, (2) exact localization of an obstruction in ureter, (3) the exact topographical localization of pelvis of kidney, (4) solution of difficulty in diagnosis between biliary and renal calculi, (5) conclusion over size of kidney pelvis, (6) nature of a stopping of the ureter.

By the same method one can often differentiate between an abdominal tumor, wandering spleen, or a questionable wandering kidney on the left side.

As advocated by Dr. Howard A. Kelly, a ureter-stone can be revealed by the scratch marks on such a substance as a mixture of wax and olive oil on a catheter, after contact with the said stone.

When it is necessary to operate for calculus anuria it is often difficult to know upon which kidney to operate. The inquiry as to the side which gave localized pain is deceptive, and examination of the kidney region gives no assistance. Here the cystoscope clears up the scene.

Catheterization of the ureters is now employed with success in cases of tuberculosis of the kidneys, inflammation of renal pelvis depending on the presence of calculi or pyelitis itself. In these cases the common cure may remain resultless. Pawtick, Albarran, Casper and Kelly advocate the direct catheterization of the pelvis of the kidney. They employ this means in cases with increasing pyelitis or infectious forms, but not in primary affections of the kidney. Casper is of the opinion that in all cases of chronic pyelitis, which defy medical treatment, catheterization of the ureters is indicated; an operation is then in order if this fails.

Prior to an Edebohls or modified Edebohls operation for nephritis, the ureters should be catheterized. By this segregation of the urine one can determine the permiability of the kidneys, whether he deals with a unilateral affection, and that important question, whether his patient can sustain this operation. This latter factor would bring one to the consideratlon of the functional diagnosis of the kidneys. To allude briefly to this subject:

There is a comparable value between the permiability of the kidneys and the catheterization of the ureters. This value is in the Phloridzin test, the Methylene-blue test and the Cryoscopic test, in estimating the functional activity of the kidneys. Results of these tests are:

In the Phloridzin test: on segregation of the urine one obtains, from a healthy kidney, glycosuria, and from a diseased kidney no change whatever.

In Methylene-blue test: on catheterizing the kidneys, from a diseased kidney a pale barely-colored urine will be collected, while from a healthy kidney a pure green urine is obtained.

The Cryoscopic test: the freezing point of the urine lies between 0.9 and 2.3°. If the urine on segregation from the kidneys is below 0.9, an insufficiency of kidney or kidneys is shown.

Thus by the catheterization of the ureters one is able to estimate the functional activity of each kidney individually, by separately collecting the urine and subjecting it to the microscopical, chemical and cryoscopical analyzation.

In conclusion one can rightly say that the cys-

toscope of to-day affords an exactness in the diagnosis of urinary diseases, which as yet in comparison is unattainable by any other means. Likewise, one can safely conclude in the present state of our knowledge that the catheterization of the ureters offers a valuable and ever-widening field of usefulness in the just appreciation of nephritic affections.

LIGATION OF THE LACHRYMAL CANAL TO PREVENT INFECTION FOLLOWING CATARACT EXTRACTION.[1]

BY ALEX. QUACKENBOSS, A.M., M.D., BOSTON,

Surgeon, Massachusetts Charitable Eye and Ear Infirmary; Assistant in Ophthalmology, Harvard University.

Infection through the tear duct is one of the common causes of suppuration following cataract extraction. To overcome this difficulty, various means have been employed, in cases where disease of the tear passage exists; viz., probing, syringing out the sac, treating the nasal cavity, packing the sac with antiseptic ointment, obliteration of the sac or canal with the cautery and extirpation of the sac. Probing, syringing out of the sac, or treatment of the nasal cavity, entails a long course of treatment, and is often ineffectual. Personally, I have had no experience with packing the lachrymal sac with antiseptic ointment. Cauterizing the duct or sac has occasionally been followed by infection. Removal of the sac is undoubtedly the safest procedure, the only objection to it, in cataract operations, is that a great many of this class of patients are old and infirm. Dr. Knapp, in Norris and Oliver's "System of Diseases of the Eye," speaks of "ligating the lachrymal canal as a temporary or permanent means of shutting off infection."

At the meeting of the American Ophthalmological Society in 1902, Dr. Buller of Montreal advised the "temporary ligation of the canaliculi, as a means of preventing wound infection in operations on the eye."

During the past year, I have operated on two cataract cases in which there was trouble with the tear passage; I have also seen two other cases operated on. The canal was tied, and in each case was successful in preventing infection.

The report of one case will suffice to show the method employed.

Case. Female, age sixty-two; mucocele, O. U. staphylococcus; pressure over lachrymal sac causes muco-purulent discharge into eye.

The usual preparations for cataract extraction were carried out.

Operation under cocaine. Before operating for cataract, the contents of the mucocele were squeezed out, the eye washed out with corrosive (1–5,000), then a small probe was inserted into the upper puncta, and a suture passed around the canal, from the inside of the lid out. This was repeated on the lower lid. The sutures were passed two or three mm. from the puncta and were tied quite firmly.

Inserting a probe into the puncta aids in controlling your lid and in placing your stitches; this is especially so with the upper lid. The cataract was then extracted without incident, the usual dressing was applied, the dressing was changed daily and omitted at the end of six days. Healing process normal, very little injection being present at any time following the operation.

The patient complained of no discomfort from the stitches, and they apparently caused no irritation. The stitches were removed at the end of two weeks; before taking them out, pressure over sac failed to discharge anything into eye, but after removal, a probe was easily passed, and pressure on sac caused a small amount of muco-purulent matter to come through puncta.

I see no reason to keep stitches in, after the corneal wound has healed firmly, and in my second case removed them at the end of the ninth day. The advantages of this method are, its simplicity, the ease with which it can be done, its freedom from pain, that it can be done at the time of the operation, and that it can be used even in doubtful cases.

[1] Read at the New England Ophthalmological Society, November, 1903.

Clinical Department.

A CASE OF APPENDICITIS WITH GENERAL PERITONITIS.

BY CHARLES A. ATWOOD, M.D., TAUNTON, MASS.

L. M., schoolboy, age fourteen years. Has had four previous attacks of appendicitis within the last year. These attacks were of varying intensity and usually kept him confined to his bed about two weeks. Present attack began Dec. 24, 1903. I first saw him Dec. 28, 1903, at 9 P.M. Pulse 120. Temperature 103. Vomiting. Abdomen tense and distended. More resistance over the right lower quadrant. Diagnosis, appendicitis with probable general peritonitis. Prognosis decidedly unfavorable. Immediate operation advised as only chance. This was accepted. I immediately sent the boy to Morton Hospital and with usual preparation operated at 10.15 P.M.

Operation under ether. I opened the abdomen by an incision parallel with the fibres of the ext. oblique over the appendix. As soon as peritoneum was opened, there was found to be free pus in the abdominal cavity. The pelvis was full of pus, the intestines red and covered with masses of lymph.

Pus was washed away with normal salt solution. A short, gangrenous, perforated appendix was found, tied off, and removed. Salt solution was used in washing out the abdomen until the washings returned clear. Large gauze wicks were introduced around former site of appendix. A gauze drain passed up towards diaphragm and one into the pelvis. A long counter opening was then made in the left lower side of the abdomen and a long gauze drain introduced into the pelvis. The boy was in poor condition when removed from the table. Temperature next morning was 100.6° F. Pulse, 119. Dec. 30 temperature had come down to normal. His convalescence has been uninterrupted.

I report this case because it has been one of much interest and satisfaction to myself, also as it shows how much we may sometimes accomplish by surgery even under most unfavorable conditions, and lastly, as this was a case where

the whole abdominal cavity was infected, a case of general peritonitis. When the physician will call in the surgeon as soon as he even suspects trouble with the appendix, and not when his patient is moribund, then and not until then will these desperate cases cease to be so common.

The early removal of an inflamed non-perforated appendix, with its mortality so slight, is not to be compared with the deplorable results by any method of treatment of general infection.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D., BOSTON.

(Concluded from No. 12, p. 329.)

LARGE SARCOMA OF THE OVARY SITUATED IN THE LEFT KIDNEY REGION.

AGNES BLUHM [12] reports the case of a woman twenty-eight years of age who came into Czerny's clinic at Heidelberg complaining of pain and tumor in the left hypochondrium of eight weeks' duration. An elastic tumor the size of a child's head was found in the region of the left kidney, and partially under the edge of the ribs. The urine was negative. By bimanual examination the uterus was found retroflexed and the right ovary and tube normal. The left ovary could not be found. The clinical diagnosis was tumor of the kidney, probably hydronephrosis.

The tumor was removed after a difficult dissection and the wound drained with gauze. The patient made a good recovery. The growth proved to be a necrotic sarcoma of the left ovary, measuring 52 cm. in circumference and 19, 17 and 7 cm. in diameter. About three-quarters of it lay retroperitoneal and only the under fourth free in the peritoneal cavity.

The left kidney was displaced upward but had no connection with the tumor. A band ran downward behind the transverse and descending colon from the capsule of the tumor to the left broad ligament. The left ovary was absent. The author concluded that the tumor had developed in an undescended fetal ovary.

DISADVANTAGES OF THE TRENDELENBURG POSTURE.

Franz [13] has not observed a single case of serious circulatory disturbance in 745 abdominal sections performed in the elevated position, but from studies of the pulse and respiration curves he concludes that with the pelvis elevated the abdominal breathing is diminished and that there is little or no compensatory increase in the thoracic breathing.

As to the effect of anesthesia he noted 19 cases (2.3%) of bronchitis among 825 cases of ether narcosis in the dorsal position, while there were 44 cases (8.9%) among 493 cases in the Trendelenburg posture, 4 cases (2.7 %) of bronchitis among 150 cases of chloroform narcosis in the dorsal position and 9 cases (3.9 %) among 233 cases in the elevated position; showing much less difference between the positions in the case of the use of chloroform. Franz thinks the frequency of bronchitis after operations in the Trendelenburg posture is due to the escape of the infectious contents of the mouth into the bronchi after the patient has been lowered, and suggests that the mouth be carefully cleansed before the change is made to the dorsal posture.

He considers that the diminished oxygenation, which is present when the patient is in the elevated posture, probably has a deleterious influence on the central nervous system and that many disturbances which are referred to opening the abdomen are really due to this cause.

TELANGIECTATIC ANGIOMA OF THE BLADDER.

A. Berliner [14] adds a fourth case to the three cases of this rare affection already reported in literature.

A girl eleven years of age had suffered since her fourth year from hematuria. For the last weeks the hematuria had increased to such an extent that the anemia of the patient had become alarming. Since early childhood a pronounced asymmetry of the face had been noticeable. On examination a telangiectatic angioma the size of a walnut was found on the right labium majus. The urine contained blood in large quantity, had an alkalin reaction and contained pus but no tumor elements.

Cystoscopy revealed a number of circumscribed ridges or round elevations varying in size and bluish-red in color dispersed over the mucous membrane; between these the mucous membrane of the bladder was injected. Application of stypticin and douches being ineffective suprapubic celiotomy was performed. The telangiectatic areas were treated with the thermocautery and the bladder was drained through the abdominal wound with gauze. Cystitis followed and this was treated with instillations of nitrate of silver with the result that complete recovery finally occurred.

This is the first case on record in which a correct diagnosis was made and the proper treatment applied. The three other reported cases died, and it is probable that this girl would have gradually bled to death had she not had suitable treatment.

The diagnosis was rendered more probable by the simultaneous existence of an angioma of the labium and also by the deformity of the facial bones. Hypertrophy of the face concomitant with angiomas has frequently been observed.

Berliner points out that these angiomas consist of distended capillaries or radicals of veins; the connective tissue proliferates but little and there is no new formation of vessels. Angiomas, although frequently found in the epidermis, are rarely observed in mucous membranes.

Hematuria in young patients without cachexia,

[12] Archiv. f. Gyn., Bd. lxviii, H. 2.
[13] Centralbl. f. Gyn., No. 32, 1903.
[14] Deutsche. Zeitschr. f. Chir., Bd. lxiv, H. 5 and 6.

especially if inspection of the surface of the body reveals the presence of an angioma of the skin, should lead to the probable diagnosis of telangiectasis of the bladder.

ASCENDING RENAL INFECTION; WITH SPECIAL REFERENCE TO THE REFLUX OF URINE FROM THE BLADDER AND URETER AS AN ETIOLOGICAL FACTOR IN ITS CAUSATION AND MAINTENANCE.

Under this title John A. Sampson, Resident Gynecologist at the Johns Hopkins Hospital, publishes a lengthy article,[15] giving the results of a series of experiments and his conclusions arrived at from a study of the literature as to the anatomy, physiology and pathology of the ureter.

He states that he has previously described a radical operation for cancer of the cervix uteri, which consists in the removal of the lymphatics from the sides of the pelvis together with the uterus and carcinomatous growth *en masse*, this procedure being the reverse of the usual hysterectomy with a " digging out " of the glands subsequently. He has now done ten of these radical operations with three deaths and has resected one or both ureter in three cases.

He has found that if some 4 cm. of the lower end of the ureter are resected with the growth and the ureter implanted in the bladder there is danger of an ascending renal infection, and it was to study the cause of this infection that he undertook the study of the anatomy and physiology of the ureter.

A plate showing a longitudinal section of the vesical portion of the ureter with the bladder distended shows that the ureter passes through the bladder wall as a distinct organ, its course being very oblique. When the bladder is contracted, as shown by another plate, the course of the ureter is nearly at right angles to the internal surface of the bladder. The mucosa of the ureter is continuous with that of the bladder; it is smooth and the lumen of the ureter is flattened from before backward.

The ureteral orifice may be a slit with the labia close together, or an oval or even almost round opening, and sometimes the lumen of the ureter extends below the orifice, forming a pouch. That portion of the upper wall of the ureter which forms part of the bladder wall, that is to say, the V-shaped piece lying back of the orifice as seen in a longitudinal section of a distended bladder, is called the ureteral valve. Pressure on this valve by the fluid distending the bladder brings the anterior wall of the ureter in contact with the posterior wall and occludes the lumen, thus preventing reflux up the ureter. When this valve is injured by inflammatory processes the ureteral orifice remains patent and the valve cannot close the ureter. This is very clearly shown by a longitudinal section of the vesical portion of the infected ureter from a patient dying of unilaternal ascending renal infection.

Sampson points out that curettage of the trigonum is attended with danger of injuring the ureteral valve and thus making possible renal infection, also that ureteritis and renal infection are maintained by stricture of the ureter caused by pressure of the thickened bladder wall on the ureter.

As to the physiology of the ureter, the author made experiments on dogs, and also studied the ureteral orifices and the changes which they underwent during contraction of the ureter in ten women, using the cystocope with the patient in the Sims position. He concludes that the contractions of the ureter are dependent on the functional activity of the kidney and that the chief stimulus is fluid, without regard to its chemical constituents, running into or through the lumen.

The different avenues of infection of the kidney are discussed at length, *i. e.*, by the blood vessels, by the lymphatics and by the ureters. As to the blood vessels the infection may come through the general circulation; of this little is known except that one of the functions of the kidney is to excrete organisms which have gained entrance to the blood. Aside from the general circulation the blood vessels of the kidney communicate with those of the bladder through two other channels, the utero-ovarian vessels and the vessels of the ureter. The author's experiments on dogs to demonstrate lymphatics in the ureters were not successful and he quotes Sakata, who found lymphatics in the muscular and outer coats of the ureter, but not in the mucosa. He also found that the communication between the lymphatics of the bladder and kidney was not direct, but existed either by means of the local glands of the bladder and kidney or by means of the lymph-vessels of the ureter.

Sampson considers that infection generally occurs by an extension of an inflammatory process from the bladder through the ureteral walls, or along the lumen of the ureter. Reverse peristalsis in the ureter may occur, but the author is skeptical about it. Two etiological factors in renal infection are an injured kidney and general ill health.

In conclusion, the reflux of urine from the bladder into the ureters may be considered an etiological factor in the causation and maintenance of renal infection only when the intravescial portion of the ureter is diseased, thus impairing its function, or when some ureteral abnormality exists.

PAPILLOMA OF THE URETER.

Mackenrodt [16] reported a case of this rare affection before the Berlin Obstetrical and Gynecological Society.

A woman of sixty had passed blood in her urine and had had severe pain for a number of months. It was thought that the blood came from the kidney in all probability. Mackenrodt dilated the urethra and diagnosticated a tumor of the bladder and then inspected the tumor through a cystoscope. It projected from the

[15] Johns Hopkins Hosp. Bull., No. 53.

[16] Zeitschr. f. Geb. u. Gyn., Bd. l, H. 1, 1903.

orifice of the right ureter, the ureteral mucous membrane being continued on to the surface of the tumor.

At the operation, 5 cm. of the ureter together with the right half of the trigonum, were removed with the papilloma and the ureter implanted in the bladder. The patient made an uninterrupted recovery.

Eight days after this operation, Mackenrodt had the good fortune to see another case of large papilloma of the ureter. The woman was seventy-six years old. He operated on her and fourteen days after operation had obtained a satisfactory result.

In operating on the bladder from the abdominal side, the author advocates making the abdominal incision in the form of a horseshoe, the curve of the horseshoe being at the symphysis and the ascending arms along the borders of the recti muscles. The recti are separated from the symphysis. By this method access to the bladder is very free and manipulations in the pelvis easy. He also advocates a transverse incision into the bladder instead of a longitudinal one, as affording a better veiw of the bladder interior and as causing less injury to the blood vessels.

LATE RESULTS OF VAGINAL HYSTERECTOMY FOR UTERINE CANCER.

N. Flaischten [17] is an ardent advocate of vaginal extirpation of the cancerous uterus, affirming with Winter that early operation is preferable to, and accomplishes more, than extensive operation. He emphasizes the necessity of early recognition of the disease and prefers the vaginal to the abdominal route. He reports cases operated on by himself and by Ruge in which the patients have remained well from seven to eighteen years. Of the 17 women who were permanently cured, 12 remained well over ten years and 9 more than thirteen years. Nine of the patients had cancer of the cervix, 6 cancer of the uterine body and in 2 the cervix and endometrium were both involved.

TYPHOID SUPPURATION IN OVARIAN CYSTS.

P. V. Zantchenko [18] refers to three cases on record in which an ovarian cyst suppurated and the typhoid bacillus was found in the pus, accompanied by a diplococcus in one instance. The cysts were all of dermoid origin, but in a case he has personally observed pure cultures of the typhoid bacillus were cultivated from a pseudomucinous cyst — the only case of the kind of which he has knowledge.

THE SO-CALLED FUNDAMENTAL NERVE PLEXUS OF THE UTERUS.

S. Pissemski [19] having studied preparations of the uteri of cats, bitches, guinea-pigs, pregnant and non-pregnant women, children and infants, comes to the following conclusions: (1) In women and the animals examined the cervical ganglion as described by J. Walter, R. Lee and Frankenhauser does not exist. (2) At each side of the cervix, in the region where the cervical ganglion has been described as situated, is a network of nerves with a number of scattered ganglia. (3) This plexus is derived from branches of the second, third and fourth pairs of sacral nerves of the cerebrospinal system and receives nerves from the hypogastric plexus of the sympathetic. (4) At the junction points of these nerve fibers and along their course are numerous ganglionic collections of nerve cells, many of these ganglia being macroscopic, others to be discovered only with the microscope. (5) These ganglia and nerves form the sympathetic plexus of the pelvis. They may be described as uterine, vesical, vaginal and rectal. (6) The character of the plexus and the macroscopic size of the ganglia is the same in gravid as in non-pregnant women. (7) This plexus may be designated the fundamental nerve plexus of the uterus.

STREPTOCOCCI IN THE NORMAL MALE URETHRA.

Asakura [20] examined the secretions found in the fossa navicularis in 112 apparently healthy men and found the streptococcus pyogenes present in 14 (12.5%). This fact the writer regards as of especial interest to gynecologists, since it proves that streptococci may be introduced into the vagina during the sexual act.

INJECTIONS OF PARAFFIN AT THE NECK OF THE BLADDER IN INCONTINENCE OF URINE.

Hock [21] reports the case of a girl aged twenty-three years, who six years before had had a calculus removed per urethram, with resulting incontinence which resisted all treatment. After two operations for narrowing the urethra, and one in which torsion was performed, her condition was worse than before. A second torsion gave only slight relief. Two injections of paraffin (75 gr. each time) were made at the neck of the bladder, when the incontinence was speedily cured. Three months later the patient again began to have dribbling of urine, and the injections were twice repeated, with permanent relief. The paraffin remained unchanged at the point of injection.

THIRTY-ONE CASES OF DUDLEY'S OPERATION FOR ANTEFLEXION.

R. G. Wadsworth [22] analyzes the results in the cases of Dudley's operation performed at the Free Hospital for Women in the last two years.

The technique followed was the same as that described by Dudley, except that no wedge-shaped pieces were removed from the central portion of the edges of the divided posterior lip of the cervix, and, instead of excising an oval piece from the elongated and flattened anterior lip, as advised by Dudley, the operators did

[17] Zentralbl. f. Gyn., Dec. 26, 1903. N. Y. Med. Journ., vol. lxxix, p. 225.
[18] Russki Vratch, No. 30. Journ. Amer. Med. Assoc., vol. xlii, p. 346.
[19] Monatschr. f. Geb. u. Gyn., Bd. xvii, H. 4.
[20] Zentralbl. f. die Krankheiten der Harn. med. Sexualorgane, Ld. xiv, H. 3. Amer. Journ. Med. Sci., February, 1904.
[21] Praeger med. Woch., 1903, No. 6. Amer. Journ. Med. Sci., February, 1904.
[22] Bulletin of the Free Hospital for Women, vol. i, No. 3, January, 1904.

an operation which had for its object the lengthening of the anterior vaginal wall, operating as follows: A transverse incision is made in the anterior wall of the vagina, just in front of the anterior fornix, about an inch to an inch and a half in length. The incision is carried down to the areolar tissue between the vagina and bladder, and along this line of cleavage the bladder is separated from the cervix by the finger up to the level of the internal os, and from the vagina on each side sufficiently to avoid danger of wounding the bladder in placing sutures. The incision is closed at right angles to its original direction by a continuous chromicised catgut suture.

Dudley's operation was performed for the relief of dysmenorrhea in 21 cases in which anteflexion was the only discoverable cause of the symptoms. Of these six, or 28.5 %, were entirely relieved five to fourteen months after operation. Thirteen, or 67 %, were partially relieved in from four to twenty months after operation. Two cases, or 9.5 %, received no benefit. Two cases have become pregnant.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

The regular meeting was held Jan. 21, 1904, with the president Dr. G. L. Walton in the chair.

Dr. E. W. Taylor reported a case of

BRAIN TUMOR WITH ASTEREOGNOSIS.

The patient, referred by Dr. Vivian Daniel, was a man of twenty-nine, married, who had been ailing for seven months, dating from an attack of influenza. He was at that time ill in bed and made a poor recovery. He had persistent headache, chiefly frontal, at first unassociated with nausea. Four weeks before seen, on April 18, 1903, he gave up work on account of general weakness. Three weeks previous to his first visit numbness and weakness of the right hand developed. At the time of examination he was somewhat unsteady in walking; his eyesight was not impaired; his appetite and sleep were sufficiently good. He had lost some thirty pounds in weight, twelve in the last three weeks. The right pupil was slightly larger than the left; there was no defect in light reaction, or on accommodation. There was a suspicion merely of optic neuritis. The cranial nerves showed no paralysis; the speech was slightly thick, but there was no mental impairment; the right hand and arm were extremely weak without marked alteration in the reflexes. The sensibility of the hand was normal to painful stimuli and to contact, but showed a complete astereognosis. No object placed in the hand was rightly interpreted. The pulse was 140; respiration was rapid; knee jerks were lively; there was no Babinski. A few days later nausea and vomiting developed, together with spasms of the right hand and arm and increased mental irritability.

Electrical examination showed nothing abnormal. Treatment with iodide was unavailing. The temperature was at this time, and had been for many weeks, elevated several degrees. A later examination showed a marked increase of the symptoms given above, and in view of the fact that physical examination was otherwise negative, operation was decided on in spite of the elevation of temperature because of the evident localization of the new growth, and also because the patient was rapidly failing.

Operation was done May 1, by Dr. F. B. Lund. Several nodules of a hard tumor were easily extracted from the arm area, mainly anterior to the fissure of Rolando. Temperature at the time of operation was 103.5°. The patient made a good recovery from the operation; was relieved completely of his headaches; was without discomfort, excepting for the presence of a right hemiplegia. He died May 28, slight improvement in motility having taken place during the interval. Autopsy, May 28, showed an extremely active miliary tuberculosis, with a primary focus in the prostate. The brain, apart from the tumor, which on microscopic examination proved to be tuberculous, showed only a very slight tubercular basal meningitis. Other organs were thickly studded with miliary tubercles.

The interest of the case centers in the following points: The failure to determine the presence of tuberculosis, although it was suspected; the possibility of successful operation in the presence of considerable elevation of temperature; the localization of the tumor anterior to the fissure of Rolando, but associated with a definite astereognosis bearing out the work of Walton and Paul; and finally the significance of the symptoms as again pointing to the sensory motor character of the Rolandic cortex, as pointed out by Dana and others.

Dr. F. B. Lund described the operation and spoke of the resulting relief of headache.

EPILEPSY WITH PARALYSIS.

Dr. P. C. Knapp showed a man, aged thirty-nine, who five years before had suddenly lost power in the left arm for about ten minutes. Since that time he has had similar attacks at varying intervals, once in five or six weeks, even two or three in an hour. When the attacks occur frequently he does not fully regain use of the arm in the interval. With the attack there is a sensation of numbness, which extends over the shoulder and chest, and sometimes over the face. Once it extended to the leg and the leg muscles were slightly affected. In the attack there is no convulsive movement, no loss of consciousness, no flushing of the face, no change of temperature and no change in the pupils. There has been no headache, vertigo, nausea, vomiting, somnolence, mental disturbance or optic neuritis. The physical examination was absolutely negative, except that after an attack there was di-

minished sensibility to pain, touch, motion and position in the hand. The attacks were somewhat controlled by bromide. The long continuance of the attacks without other symptoms rendered a diagnosis of cerebral tumor or general paralysis improbable. Binswanger has cited cases of epilepsy in which the attack was attended with paralysis instead of convulsion, and that diagnosis seemed probable in this case.

DR. S. G. WEBBER recalled the case of a man who, without loss of consciousness, had sudden loss of power in one arm lasting only half a minute, so that he would drop whatever the hand held, but was immediately able to use the member perfectly. The attacks were deemed epileptic.

SPASMODIC TORTICOLLIS.

DR. W. E. PAUL showed a patient two and a half years after resection of the spinal accessory nerve by Dr. M. H. Richardson, and subsequent prolonged rest, for spasmodic torticollis. The muscles paralyzed by the operation have regained their tone and are under voluntary control. There is only rarely spasmodic twitching of sternocleido, or trapezius. The result seems satisfactory.

DR. J. J. PUTNAM thought that when spasmodic torticollis could be relieved without resort to operation it was preferable.

DR. C. F. FOLSOM reported a case relieved by non-operative treatment.

DR. H. C. BALDWIN referred to the lasting immunity from spasm in a severe case operated upon by Dr. M. H. Richardson several years ago.

TORTICOLLIS IN A MARE.

DR. KNAPP said that he and Dr. Putnam had recently seen a mare who apparently had spasmodic torticollis. The mare was out of a thorough-bred dam by a French bred coach horse and had won various prizes. She first came in season at the age of three, and at times after that, when in season, she would try to bite her tail. She was not nervous, although she was obstinate and would behave badly if not harnessed to her liking. She showed none of the equine stigmata of degeneracy. About a year ago, possibly after exposure, she began to turn her head toward the off side, the spasm recurring several times a day and lasting two or three minutes. She has had as many as nineteen of these spasms in an hour. They are usually worse when she is in season. The spasm can be felt by a person on her back to involve the muscles of the flank and rump, but it does not cause any change in her gait, either the walk, trot or canter. She does move her forward feet a trifle in the spasm to preserve her balance. There is no history of injury, no tender spot and no spot which seems by pressure to influence the spasm. Massage, electricity, ounce doses of Fowler's solution, and large doses of bromide and chloral had no effect. Absolute rest in a box stall had apparently made her worse. Breeding and the freedom of a paddock had been suggested. The spasm seemed to involve chiefly the levator humeri and the sterno-maxillary muscles, the analogues of the levator anguli scapulæ and the sterno-mastoid. The circular nerve of Willis, analogous to the spinal accessory, supplies these muscles in part, and in one place is quite superficial. The nerve is often divided at this point to prevent cribbing, and this operation is now proposed for this condition. The case is apparently unique. None of the veterinary surgeons here or in New York and no stable men have ever seen anything like it. Dexler in his "Nervenkrankheiten des Pferdes" describes a facial tic in the horse and other forms of tic, but nothing like this. Rudler and Chomel [1] describes various forms of tic in the horse, notably the "tic de l'ours" or "weaving," but no reference has been found to any condition such as this mare presents, which closely resembles spasmodic torticollis as observed in man.

DR. G. A. BLUMER, president of the Society for the ensuing year, assumed the chair, and called on DR. C. L. DANA of New York for his paper entitled

THE PARTIAL PASSING OF NEURASTHENIA.

The president, DR. BLUMER, in calling for the discussion of the paper, commented upon the essential unity of nervous and mental diseases. The latter, he said, were merely nervous diseases with greater prominence of the mental symptoms. He welcomed the commoner use of the term "phrenasthenia," which the French had found useful, and approved the essayist's attempt to popularize it as one that described more accurately, in the majority of instances, the symptom-complex which neurologists, as a sweeter morsel for the invalid's tongue, had described under the all-inclusive "neurasthenia," whose partial passing the distinguished visitor from New York had come to Boston to proclaim. He animadverted banteringly, and with an attempt at defence, as himself a recent comer to New England, on the pronunciation of the word "neurasthenia" as current in these parts and nowhere else, the adoption of which by the essayist would entitle him at once, despite his modest protest, to recognition in New England as to the manner born.

DR. J. J. PUTNAM said that he was glad to hear Dr. Dana lay emphasis on the mental element in neurasthenia, since from a practical standpoint, it was, perhaps, the most important element. On the other hand, there seems to be no sufficient reason for making the mental symptoms the turning point in classification. Many patients do not present such symptoms in any considerable degree, if at all, and their symptoms are often relieved to a greater or less extent by treatment and operations calculated to relieve some peripheral irritation. It would be just as reasonable to point out the relationships between neurasthenic conditions and quasi-normal conditions as between neurasthenia and more pronounced forms of mental disease. The

[1] Revue neurologique, xi, 541, June 15, 1903.

latter classification has a certain clinical advantage, but if it came into general use, it would cause unnecessary distress to many patients who were really not so very ill.

DR. G. L. WALTON agreed with the reader regarding the limitation of the diagnosis neurasthenia. In the neurological department of the Massachusetts General Hospital during October, November and December, 1896, this diagnosis was made 43 times, whereas it had been made during the same months of the past year only 11 times, which would have corresponded to about 16 times, if the number of cases had been the same. Most of the cases classed formerly as neurasthenia were now transferred to the "psycho-neuroses." He did not think they had often mistaken dementia precox, or paranoia, for neurasthenia.

DR. P. C. KNAPP believed there were many cases of true neurasthenia or irritable weakness — a condition of pathological fatigue. In uncomplicated cases the mental symptoms are not prominent. Study of a number of cases diagnosticated as neurasthenia showed definite mental symptoms in only a small percentage. A distinction must be made, however, between simple mental depression and true melancholy states. Every sick person is apt to be depressed. This is physiological and should not be classed as melancholia. In only a comparatively small proportion of neurasthenics are there insistent ideas, morbid doubts, morbid fears and other indications of the ideo-obsessive tendency. When a patient becomes weak, however, he begins to distrust his own powers and in this way, especially among the "deviates" and those of an unstable mental organization, morbid doubts and fears may develop. In other cases obsessions may arise in a person who is not neurasthenic, and the struggle against them may so exhaust the patient as to give rise to neurasthenia. We can usually distinguish, however, which is primary. Obsessions sometimes develop into actual delusions, akin to the delusions of paranoiac states; in fact, folie du doute is sometimes spoken of as abortive pananoia. His experience agrees with that of Dr. Walton, that as a rule we do not find any tendency to paranoia, or dementia, among neurasthenics.

DR. J. W. COURTNEY spoke of pathologic fatigue supposed to underlie the neurasthenic state. One is too prone to believe that because over-fatigued honey bees and humming-birds show changes in the nerve cells, analogous changes take place in the human species. Such assumption is unwarranted by clinical experience. In a neurasthenic who can barely crawl from home, yet who walks homeward with buoyant step, the conditions are psychical rather than physical. Whether called phrenasthenia or psychasthenia, it is to a limited extent a mental degradation, a pathologic state of nolition and the simulacrum of various forms of insanity.

DR. WM. MCDONALD regarded true melancholia and true paranoia as rare, the former falling generally under manic depressive, the latter under dementia precox. He coincided with the reader in limiting the use of neurasthenia. The term congenital neurasthenia, though scarcely permissible for the characterization of a special group, has been of some use in differentiating patients with congenital pathological tendencies.

DR. DANA said, in concluding, that cases of neurasthenia allied to or leading up to dementia precox were not very numerous, but their serious character made it very important to recognize them. They were in persons under twenty-five. There were relatively few cases of abortive types of paranoia passing around as neurasthenias; yet they did exist in the early depressed and moody stage. The largest number of cases miscalled neurasthenia, came under the head of phrenasthenia. The group in its well-marked forms was easily recognized as hysteria, doubting mania, morbid fears, obsessions, and so forth. It was the imperfectly developed forms that were unrecognized and which passed as "nervous exhaustion." A great many cases of mild recurrent melancholia or manic depressive insanity, were classed as neurasthenia. The speaker thought this would not occur if a more serious study of the mental state were made. He was inclined to favor the view of Dr. McDonald that paranoia should be classed with paranoid dementia. He would still recognize some cases as real neurasthenia; the others were 'psycho-neuroses," and these could be further distributed mostly as phrenasthenia or depressive psycho-neuroses.

THE AMERICAN SOCIETY OF CLINICAL SURGERY.

A REGULAR meeting of the Society was held in New York on March 18 and 19, under the supervision of the President, DR. GEORGE E. BREWER, assisted by DR. P. R. BOLTON and DR. J. A. BLAKE.

The two days were spent in visiting hospital clinics and laboratories.

At the College of Physicians and Surgeons Dr. F. C. WOOD, by invitation, in the pathological laboratory demonstrated specimens illustrating the pathology of tumors of the parotid; DR. CHURCHILL CARMALT, by invitation, demonstrated specimens showing the development and morphology of the salivary glands; DR. J. A. BLAKE showed his interesting modification of the Murphy button for gastro-enterostomy; DR. J. W. DRAPER MAURY, by invitation, showed a modified method of performing gastro-enterostomy with the McGraw ligature and DR. GEORGE E. BREWER demonstrated his ingenious method of treating wounds of the larger arteries by wrapping them with an elastic adhesive plaster.

In the afternoon, at the Presbyterian Hospital, DR. ELLSWORTH ELIOT, JR., gave an operative clinic and demonstration of cases, showing the x-ray plate of an open safety-pin in the esophagus; a patient operated upon for cancer of the tongue and another patient operated upon six years ago for cancer of the breast without recurrence; also two cases of hepaticptosis operated upon with relief of symptoms, by stitching up the round and falciform ligaments and denuding the liver and diaphragm. Dr. Eliot also operated upon a case of acute appendicitis, before the Society.

The members next assembled in the amphitheatre

of the Roosevelt Hospital where DR. R. F. WEIR, by invitation, showed two cases recently operated upon by hypoglosso-facial anastomosis for facial paralysis; a woman operated upon for hydronephrosis with a history of eleven previous abdominal sections: a case of pharyngeal tumor, a case of stone in the kidney and cases of foreign bodies in the trachea and esophagus. DR. J. A. BLAKE then demonstrated, in a case of bleeding ulcer of the stomach, the use and advantages of his modified Murphy button in an operation for gastro-enterostomy.

On Saturday, March 19, members assembled at 8.30 A.M. at the Hospital for the Ruptured and Crippled where DR. W. B. COLEY, by invitation, demonstrated three operative cases of inguinal hernia. DR. P. R. BOLTON then conducted the members over the Hudson Hospital illustrating "a type of an emergency hospital." After this visit Dr. Bolton operated at the New York Hospital, showing the transverse abdominal incision for pelvic disease. The afternoon was spent in visiting and inspecting, under the guidance of DR. HOWARD LILIENTHAL, the fine new Mount Sinai Hospital.

The Society then adjourned to meet next autumn in Buffalo and Cleveland.

Recent Literature.

Practical Handbook of the Pathology of the Skin. An Introduction to the Histology, Pathology and Bacteriology of the Skin, with Special Reference to Technique. By J. M. H. MACLEOD, M.A., M.D., M.R.C.P. Philadelphia: P. Blakiston's Sons & Company.

In the preface the author states that this handbook is intended primarily for students of dermatology, and is based on demonstrations given by him at Charing Cross Hospital.

Although the agents which affect elements of the skin in disease are described in detail, the book does not profess to be a complete treatise on the pathology of the skin, but rather a practical introduction to it. Most of the illustrations are drawn from his own specimens, a few from preparations lent him for the purpose, and there are several reproductions. The book certainly supplies a want, as the only other work dealing with this subject is Unna's large and much-involved "Histo-Pathology of Diseases of the Skin."

Macleod begins by a chapter on the apparatus necessary for histological technique, and follows with chapters on methods of examination, fixing, hardening, etc. These chapters, as well as those on staining, are exceedingly well written and clearly expressed. Various affections of the skin are then taken up in chapters dealing with the pathology of the epidermis, corium, blood vessels, pigment, etc. There are chapters dealing with bacteria, protozoa, etc. A little more space might advantageously be given to blastomyces and allied subjects. Altogether the book is to be greatly commended. The illustrations are clear and well printed. The paper and type are good, and the work, as a whole, will be gratefully consulted by those interested in dermatology.

Manual of Medicine. By THOMAS KIRKPATRICK MONRO, M.A., M.D., Fellow of and Examiner to the Faculty of Physicians and Surgeons, Glasgow; Physician to Glasgow Royal Infirmary, and Professor of Medicine in St. Mungo's College; formerly Examiner in the University of Glasgow and Pathologist to the Victoria Infirmary. Illustrated. Philadelphia and New York: W. B. Saunders & Co. 1903.

Another work on general medicine is before us, intended primarily for students and what the author is pleased to call junior practitioners. He considers that a manual of this size, which comprises about 900 pages, is needed, on the ground that many books are too small for the needs of the modern student, whereas others are too large. He compromises with a book of goodly size, but still in form and treatment by no means so inclusive as many of the standard works on the practice of medicine have come to be. We are inclined to think that books of this character are useful for the reasons specified by the author. The modern student is required to cover more and more ground in his medical studies without any very great addition to the length of time allowed, and it therefore becomes necessary that practical working textbooks should be of moderate compass, avoiding, however, the charge of superficiality. This, we should judge, Dr. Monro has accomplished in this new book.

It is printed in clear, good-sized type, with conspicuous headings, so that it should prove useful as a book of ready reference. We note that a section on diseases of the skin is included and also one on diseases due to animal parasites. The book is therefore rather more inclusive than many more pretentious volumes, and no doubt will fill the place for which it is designed. We note the almost complete absence of references to literature, a growing custom of textbook writers which in a certain sense is regrettable.

A Treatise on Orthopedic Surgery. By ROYAL WHITMAN, M.D. Second edition. Lea Brothers & Co. 1903.

It is a gratifying evidence of the interest taken in orthopedic surgery that a second edition of this valuable book has appeared so promptly. The work in the new edition has been enlarged and strengthened in many directions. The writer has the gift of clear statement and definite ideas founded on an extensive experience. A detailed, critical analysis of the different views advocated by Dr. Whitman, with an examination of the exact value of those of his ideas which differ from that of other orthopedic surgeons is to be left for the columns of special journals. It is sufficient to state here that the work is of the very highest character and is a standard of the best work in the specialty.

The book may be strongly recommended to all students and general practitioners who wish instruction in this important branch.

Lessons on Massage. By MARGARET D. PALMER, Masseuse and Manager of the Massage Department of the London Hospital, Instructor of Massage to the Nursing Staff of the London Hospital, Member of the Council of the Incorporated Society of Trained Masseuses. Second edition. Illustrated. New York: William Wood & Co. 1904.

We reviewed this book with commendation in its first edition. This second edition is slightly extended in scope. A brief chapter on the Nauheim treatment is appended and also one on bandaging. The book is, as was its predecessor, amply illustrated, and contains many facts with which those interested in massage should be acquainted. A lack of knowledge of human anatomy is a defect in many of those who give this type of treatment. This book should tend to overcome this deficiency.

A Manual of the Practice of Medicine. Prepared especially for Students. By A. A. STEVENS, A.M., M.D., Professor of Pathology in the Woman's Medical College of Pennsylvania; Lecturer on Physical Diagnosis in the University of Pennsylvania, etc. Sixth edition, revised and enlarged. Illustrated. Philadelphia, New York and London: W. B. Saunders & Co. 1903.

A sixth edition of this concise book on the practice of medicine attests its popularity and usefulness. We are pleased to see the distinct statement on the title page that the book is prepared for "students" without mention of the usual "practitioner." Evidently books of this description are essentially useful to somewhat elementary students, and if any distinction at all is desirable, we are glad to see it drawn as Dr. Stevens has seen fit to do. A complete revision has been made in this edition, the section on diseases of the digestive system entirely rewritten, as well as many other individual articles. The book, as heretofore, is very attractively bound in flexible leather covers, is capable of fitting into a good-sized pocket, is comprised in 556 pages and is altogether a vast improvement over the ordinary quiz-compend, and deserves general recognition.

An Atlas of Human Anatomy. For Students and Physicians. By CARL TOLDT, M.D., assisted by ALOIS DALLA ROSA, M.D. Translated from the third German edition and adapted to English and American and International Terminology by M. EDEN PAUL, M.D. (Brux.), M.R.C.S., L.R.C.P. Second Section, C, Arthrology. Third Section, D, Myology. New York: Rebman Company. 1903 and 1904.

Part II of this atlas, to which we have already alluded in some detail, concerns itself with the subject of arthrology. The same general plan is adhered to in this volume as in its very successful predecessor, and we have only words of commendation for the cuts, the accompanying descriptions and the generally systematic arrangement of the subject matter. The atlas idea is evidently kept distinctly in mind and is altogether to be commended since there is a certain tendency to advertise as atlases volumes which on examination bear but slight resemblance to our idea of that type of publication. Colors are sparingly used in this as in the preceding plates, but quite sufficient to make clear the different anatomical structures.

Part III is devoted to myology. The cuts, as in the preceding sections are very numerous, and executed in such a way as to express clearly the fundamental anatomical features. Muscles are, for the sake of contrast, colored an attractive brown, which serves to render clearer their finer relations. As a supplement to the general myology the inguinal and femoral canals are pictured with descriptive text and the customary use of red and blue to indicate arteries and veins.

Full indices are appended to each of these volumes, and every effort has clearly been made to render the books diagrammatic without being untrue to the facts, and convenient for purposes of quick reference. We can only repeat our commendation expressed in our notice of the first volume. We shall await the appearance of the three succeeding sections with much interest.

Manual of Practical Anatomy. By D. J. CUNNINGHAM, M.D. (Edin. et Dubl.), D.Sc., LL.D., D.C.L. (Oxon.), F.R.S. Two volumes. Third edition. Illustrated. Philadelphia: J. B. Lippincott Company. 1903.

This "Manual of Practical Anatomy" has reached its third edition with certain alterations of detail. Some of the material, which experience has proved unessential for a work of this sort, has been omitted. The descriptive matter has been rendered more concise, and the book has not grown in bulk in spite of general revision of the text. The chief changes have been made in those portions of the book which treat of thoracic and abdominal viscera. This has been rendered possible and desirable by improved methods of hardening fresh material, so that many errors have been corrected regarding the relationships of the viscera. The illustrations also have been modified and improved. In this edition they are certainly admirable. Colors have been used somewhat sparingly, but sufficiently to bring out important points. Particularly commendable are the excellent drawings of the nervous system. Although not very numerous, we have rarely seen better reproductions of sections through the oblongata and pons. The subject matter is arranged by regions rather than in the ordinary didactic fashion of the conventional textbook, and should, therefore, be of service, as is the intention of the author, to men engaged in the practical applications of anatomical knowledge. The volumes are small, attractively bound, and excellently printed. Particularly to be commended is this convenience in size, a striking contrast to the ponderousness of the ordinary work on anatomy.

The After-Treatment of Operations. A Manual for Practitioners and House Surgeons. By P. LOCKHART MUMMERY, F.R.C.S. (Eng.), B.A., M.B., B.C. (Cantab.). Demonstrator of Operative, Surgery, St. George's Hospital Late Senior House Surgeon, St. George's Hospital. New York: William Wood & Co. 1903.

This book is a small volume of 218 pages, compact and fairly well done. The author has evidently had a very considerable experience in the after-treatment of operations. The directions given are very simple and direct, but the minute details of the treatment are not given. In a future edition, which we feel confident will be called for, we believe that the author should add more details. An exception to this absence of detail is in the treatment of shock, which is given very fully. The after-treatment of laparatomy is considered at length. Operations in the various regions are touched upon. The appendix contains details on the different methods of feeding, diets, massage, exercises, artificial appliances, including limbs and belts and antistreptococcic serum injections. The cuts somewhat crude and the printing is only fair. There can be but little doubt that the treatment of the critically ill patient is a subject of vital importance.

The Practical Medicine Series of Year Books. Comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the General Editorial Charge of GUSTAVUS P. HEAD, M.D. Vol. VI. General Medicine. Edited by FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, M.D., May, 1903. Chicago: The Year Book Publishers. Vol. X. Skin and Venereal Diseases, Nervous and Mental Diseases. Edited by W. L. BAUM, M.D., and HUGH T. PATRICK, M.D. Illustrated. September, 1903. Vol. III. The Eye, Ear, Nose and Throat. Edited by CASEY A. WOOD, C.M., M.D., D.C.L., ALBERT H. ANDREWS, M.D., and AUGUSTUS P. HEAD, M.D. Illustrated. December, 1903.

Volume VI of the "Practical Medicine Series of Year Books" on general medicine, under the editorship of Drs. Frank Billings and J. H. Salisbury, contains the usual concise review of important articles in this field during the past year. Attention should be called to the fact that this series of books is published primarily for the benefit of the general practitioner, hence the arrangement in separate volumes. The more specialized fields of medicine are, however, not neglected.

Another volume of the series on the skin, venereal, nervous and mental diseases for September, 1903, is also before us. This volume requires no special note beyond the general statement that the standing of the authors leaves no question of the correctness and value of the abstracts of current progress in their several fields.

Volume III on the eye, ear, nose and throat, bearing the date of December, 1903, discusses the progress made in these special branches.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, MARCH 31, 1904.

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THE VISIT OF PROF. PAUL EHRLICH.

IT is no longer an unusual experience to be visited by distinguished men of science from Europe. We have in mind, for example, the very recent visits of Professor Foster, Professor Ewald and Professor Lorenz. This fact, however, should not abate our interest in the sojourn of Prof. Paul Ehrlich in this country. Professor Ehrlich occupies a wholly unique position in the medical world at the present time. It is to him more than to any other one man that we look for discoveries of moment in the now vital questions of immunity and serum therapy. These studies on immunity in the broad sense are in a way comparable to the discovery of the circulation of the blood, the cellular basis of pathology and the pioneer work of Pasteur in bacteriology. To prosecute this new research with success requires a peculiarly broadly trained mind and one in which the element of originality and the power of generalization are conspicuous. These attributes Professor Ehrlich possesses in unusual degree.

The immediate occasion of this visit to America is the delivery of the Herter lectures for the year at the Johns Hopkins University. It will be remembered that this lectureship was founded by Dr. Herter of New York for the purpose of bringing into closer touch medical scientists in this country and in Europe. A more opportune choice for this year's lectureship could hardly have been made, and, although Professor Ehrlich does not speak English, we can have no doubt that his remarks will be listened to by an attentive and appreciative audience. The University

of Chicago has already honored him by the degree of LL.D., and this week he is to be the guest of the American Association of Pathologists and Bacteriologists at its annual meeting in New York. It is hoped and expected that he will visit Boston in the course of his travels, although so far as we have learned there has been no arrangement for a formal address on his part.

In this connection it may be well to allude to the peculiarly favorable conditions under which Professor Ehrlich has been able to carry out his researches. In 1896 he was appointed director of the Institute of Serum Therapy in Frankfort-on-the-Main, a laboratory maintained by the German government. At this laboratory, with an adequate staff of assistants, untrammelled by the details of teaching and wholly independent of outside conditions, he is enabled to prosecute without restriction his chosen subject. The only limitation to the work is that it shall be directed toward the serum treatment of bacterial diseases.

This somewhat unique position, unfortunately, finds few parallels in other countries. Naturally a man of science, who willingly gives up the best and most active years of his life to the elucidation of an abstract subject, should be free from the cares and responsibilities which the necessity of procuring a livelihood demands. In spite of liberal provisions now made for research through the munificence of Mr. Carnegie and Mr. Rockefeller in this country, there is still apparently lacking that assurance of permanency which must be had if the best results are to be attained. Very recently the New York legislature has cut out the appropriation of $15,000 for the prosecution of cancer research in that state on the ground that nothing as yet has been accomplished. If such action be possible, for the reasons given, it is clear that the services of well equipped men cannot be obtained. The spirit of research is sufficiently active in this country and unquestionably the means to support it are equally abundant, but it is absolutely necessary that these resources be distributed in such a way that the greatest possible independence of investigation for long periods of time, regardless of immediate results, may be attained. It is perfectly clear that the questions now confronting scientific men in medicine are not such as may be answered in one or perhaps ten years, but that long periods of research, possibly discouraging alike to investigator and to the public, must be expected before final results of importance may be reached. The means of supporting such investigations should be wholly irrespective of results and until this is in some way attained, we may hardly expect to accomplish what our colleagues in Germany are doing. If Professor Ehrlich's visit, with its other advantages to us, may also result in directing the attention of our public spirited men toward the best way of encouraging and maintaining research, it will have accomplished a most beneficent end.

CATHETERIZATION OF THE URETER.

The danger attending indiscriminate catheterization of the ureter in women as practiced in the clinics at the present time is forcibly presented to us in a recent article on urinary tuberculosis by Hunner.[1] He shows that given bacteria in the bladder, as in the case of urinary tuberculosis, and the trauma which of necessity attends the passage of a ureteral catheter, be the catheter ever so deftly introduced, we have present two important factors in the causation of infection of the ureter and kidney. Furthermore in bladder tuberculosis in a cachectic patient it has been determined that when the woman is placed in the knee chest posture and air is admitted to the bladder through a cystoscope the ureteral orifices are apt to gape on the sound as well as the diseased side, and thus permit the entrance of air together with bladder contents into the ureters.

Bearing on this point are to be considered the researches of the resident gynecologist of the Johns Hopkins Hospital.[2] He instituted a series of experiments on animals and a cystoscopic study of the ureteral orifices in women, because it had been found that implantation of the ureter in the bladder after resection of the ureter in cases of advanced uterine cancer, was almost invariably followed by infection of the kidney belonging to the implanted ureter. According to these experiments renal infection is most often produced by the passage of microorganisms from the bladder up to the lumen of the ureter, and this passage of bacteria takes place under ordinary conditions only when there is present some injury to the vesical end of the ureter thereby preventing the valve-like portion of the vesical wall at this situation from maintaining the ureteral canal in a state of closure.

If, as would appear to be the case, urinary tuberculosis is almost invariably primary in the kidney, and in its early stages, at least, con-

[1] Johns Hopkins Hospital Bulletin, January, 1904.
[2] Ibid. No. 153.

fined to one kidney, the physician should be able to make a diagnosis without catheterizing the ureters. A history of pain in the back, side or inguinal region, together with a disturbance of bladder function, having led to a suspicion of some kidney disease, physical examination shows the kidney usually palpable and tender, and palpation over the course of the ureter as it crosses the brim of the pelvis elicits tenderness and a desire to void urine. Through the vagina the thickened bladder or the tender utero-vesical region is palpated, and the thickened ureter can nearly always be felt at its vesical junction just anterior to the cervix, and through the rectum it may be felt coursing outward and backward. A systematic search for tubercle bacilli in the urine, examining one or two slides a day for a week instead of many slides from one specimen as so often done, will verify the diagnosis.

If cystoscopy is resorted to it should be done with the patient in the elevated dorsal position. It is not necessary to catheterize the ureter on the supposedly sound side. Urine enough for microscopic examination and for an estimation of urea may be obtained from this side by inserting a ureteral catheter in the ureter of the diseased side and while it is in place washing out the bladder and then collecting the bladder urine. Suitable allowance can be made for the contamination from the bladder.

The danger which attends infection of a sound ureter and kidney in the case of urinary tuberculosis applies to other diseases in which the bladder is teeming with bacteria, so that too great care cannot be exercised in selecting cases for ureteral catheterization.

THE ETIOLOGY OF SPINA BIFIDA.

WHEN one considers the embryology of the spine and cord, it is easy to explain how a primary lesion of the former may mechanically act on the development of the rachis, alter its make-up and prevent the union of the vetrebral plaques. In some instances the medullary lesion, no matter what it may be, must appear at a very early embryonal period, because it existed when the cord was in the state of a sulcus and prevented the closure of this sulcus; such is the case, for example, in myelo-meningocele produced by an external hydrorachis.

If the causal lesion has acted at a later date, when the medullary sulcus has closed, one may admit that hydrops of the central canal of the cord has played the same part as an exostosis, or a foreign body, and from its size has opposed the union of the vertebral arches. It would appear that, in such cases, it is useless to search the why of the arrest of development of the osseous canal, the reason for the rachischisis, of spina bifida, properly speaking. The reason resides in the fact that hydrorachis exists, and it is only the cause of the hydrorachis that should be ascertained.

Beyond any doubt the cause producing the arrest of development of the neural sulcus may act likewise on the vertebral plaques, and this is so evident that, if in all cases of hydrorachis there is spina bifida, in all the instances of the latter affection there is not necessarily a hydrorachis. Let us explain. One sometimes meets with cases of spina bifida without tumor, the so-called spina bifida occulta, and this latter type appears to us to show the independent relationship of rachischisis and hydrorachis, and also the reality of this fact, namely, that a vertebral fissure is not enough to produce an hydrops of the cord or of its envelopes.

If in cases of spina bifida occulta, lesions are present which indicate a lesion of the cord, we are of the opinion that the medullary lesions are independent of the spina bifida, or, at any rate, are of earlier origin than those which are the cause of the rachischisis. Whatever the truth may be, the important point to retain is that spina bifida arises either from an arrest of development or from an hydrops of the cord or its envelopes.

The etiology of the affection is surrounded with mystery, and textbooks consider it unexplained. The pathogenesis of spina bifida has been little studied, but among the probable causes admitted, we would mention first Cruveilhier's opinion, according to which the inocclusion of the vertebral canal results from adhesions contracted by the fetus with the membranes of the ovum. Dareste believes that the inocclusion is consecutive to compression exercised on the dorsal aspect of the embryo by an abnormally narrow caudal fold of the amnios. On the other hand, Houel, Sulzer, Pilliet and Recklinghausen believe the inocclusion to be due to a mechanical cause, such as an exostosis, a pedunculated neoplasm of the ependymis, or a fibro-myo-lipoma, while Lebedeff considers the causal factor to be an exaggerated curve of the rachis.

None of these interpretations is quite satisfactory, and none explains the frequent coexistence of this anomaly with other various malformations, such as hare lip, club foot, etc.;

and still more they do not explain the intimate relationship which appears to exist between hydrorachis and hydrocephalus.

In 1883 Lannelongue offered the opinion that arrests in development might be due to a *virulent condition of the generators*, and in order to give weight to this hypothesis, he recorded four cases in which he considered that syphilis could be legitimately held responsible for the origin of spina bifida. Fournier also upheld the same doctrine, based on a number of personal observations.

It is far from our thought to uphold that in all cases of this affection syphilis is the causal agent, but we cannot refrain from believing that no other etiology is so fit to explain both the arrest in development and the medullary hydrops. Then again, among all the infections which might be incriminated as the primary origin of this malformation, there is hardly any which can be more legitimately suspected than syphilis, and, in point of fact, of all the infectious causes, is there one more intense or virulent in its effects than syphilis? Is there one that attacks the embryo more profoundly or at an earlier period of its development, or which better realizes the ensemble of lesions which so frequently accompany this developmental anomaly?

So many cases of spina bifida have been recorded in which syphilis in the parents has been found, that it is incumbent upon every medical man to study his cases with the view of ascertaining to what extent this potent virus may act in the causation of this congenital defect.

MEDICAL NOTES.

Undrinkable Alcohol. — According to *Science*, the Russian Government has offered a prize of about $25,000 for the discovery of some method to make alcohol undrinkable.

Anniversary Dinner of the Henry Phipps Institute. — The anniversary dinner of the Henry Phipps Institute was given by the staff at the University Club, Philadelphia, on Monday evening, the 28th. The delegates to the convention, which was called to consider the question of forming a national organization for the study of tuberculosis, were all invited as guests of the occasion. Sixty-two persons were present, among whom were many of the most eminent physicians of the United States.

The feature of the evening was the presentation of a silver pitcher to Dr. Lawrence F. Flick, the director of the Henry Phipps Institute, by the members of the staff as a token of their esteem. Mr. Henry Phipps, the founder of the Institute, was present and made the presentation in the name of the staff.

Among those who spoke after dinner were Dr. Abraham Jacobi of New York, Dr. William H. Welch of Johns Hopkins University, Dr. Vincent Y. Bowditch of Boston, Dr. John H. Prior, Dr. Charles L. Minor of Asheville, N. C., Dr. George M. Sternberg, former surgeon general of the army; Dr. John B. Huber of New York; Dr. Leonard Pearson, State Veterinarian of Pennsylvania; Dr. S. A. Knopf of New York; Dr. Ward of Albany, N. Y.; Dr. Henry B. Holton of Brattleboro, Vt.; Dr. John Musser and Dr. James Tyson of University of Pennsylvania and Dr. J. C. Wilson of Jefferson Medical College.

Dr. L. F. Flick acted as toastmaster and chairman and Dr. M. P. Ravenel spoke for the staff of the Henry Phipps Institute.

The Herter Lectures. — The first course of lectures on the Herter foundation will be delivered by Professor Paul Ehrlich, M.D., LL.D., director of the Royal Prussian Institute of Experimental Therapeutics, Frankfort-on-the-Main, Tuesday, Wednesday and Thursday, April 12, 13 and 14, 1904, at 4.30 P.M., in McCoy Hall, The Johns Hopkins University, Medical Department.

The lectures will be in the German language upon subjects relating to immunity. The special topics will be: (1) "The Mutual Relations between Toxine and Antitoxin;" (2) "Physical Chemistry versus Biology in the Doctrines of Immunity;" (3) "Cytotoxines and Cytotoxic Immunity."

Resignation of Sir Lauder Brunton. — It is announced that Sir Lauder Brunton has resigned his position at St. Bartholomew's Hospital, and has been appointed honorary consulting physician and a governor. He has been connected with the institution for thirty-three years in various capacities, but only nine years as full physician. Commenting on this resignation, the *British Medical Journal* makes the following remarks:

Recognizing that there are many young men at the hospital who are in the same position as he was fifteen years ago, and who would willingly devote a large proportion both of energy and time to hospital work and teaching and being conscious that for the last five or six years the claims of practice have tempted him to diminish the time spent in the hospital, he has taken the step now announced. Sir Lauder Brunton has expressed to us the opinion that the system of age

tenure as applied to the medical staff of St. Bartholomew's Hospital is bad, and nearly though not quite as bad as that of life tenure against which Abernethy inveighed after having been twenty-eight years assistant surgeon. We learn that before he was appointed full physician Sir Lauder Brunton suggested that the tenure of office should be altered to a time tenure of ten or twelve years as assistant, and ten or twelve years as full physician or surgeon, but this suggestion has not hitherto been adopted. We believe that but for accidental vacancies caused by the appointment of Dr. Southey to be a commissioner of lunacy, and by the creation of the appointment of a fifth physician to the hospital Sir Lauder Brunton would only have become full physician about six months ago; this is a *reductio ad absurdum*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon March 30, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 29, typhoid fever 8, measles 195, smallpox 0.

DR. D. H. CRAIG HONORED. — At its meeting on March 23, 1904, the Massachusetts Medical Society, Suffolk District, Section for Obstetrics and Diseases of Women, elected Dr. Daniel H. Craig as its President. On March 24, 1904, after presenting a paper for their consideration Dr. Craig was given an Honorary Membership in the New Hampshire Surgical Club at its semi-annual meeting held at Concord, N. H.

NEW YORK.

POISONING BY OXALIC ACID. — Deputy United States Marshal John E. Thorne of Brooklyn was fatally poisoned on March 28 by a dose of oxalic acid which was accidentally administered to him by a member of his family for Rochelle salts.

COMMITMENTS FOR DRUNKENNESS. — In the annual report of the State Commission of Prisons, recently presented at Albany, it is stated that during the past year there were 28,519 commitments to the jails and 3,615 to the penitentiaries for intoxication, making a total of 32,134 commitments for the single offence of drunkenness. The total commitments during the year to the penal institutions of the State, for all offences, were 102,581. Thus it appears that nearly one-third of all commitments were for intoxication. While it may be necessary for the protection of the public that intoxicated persons should be taken into custody and receive treatment at the hands of the state, it is urged that this offence should not be treated strictly as a crime. "Drunkenness," the report continues, "has in it no element of malice — one of the usual and necessary elements of crime. Habitual drunkenness arises largely from mental weakness, and its treatment should partake of the characteristics which the state has deemed wise to use in other cases of mental aberration. There is a large distinction between the man who cannot control his appetite for drink and the man who wilfully and maliciously commits an offence agaist the person or property of another. The law should recognize this distinction. The present practice of sending him to jail or to a penitentiary, branded as a criminal, to cónsort with thieves, only depraves and discourages him, and at the same time inflicts punishment and privation upon his family. Some wiser method of dealing with this offence should be ascertained and adopted."

PART-TIME SYSTEM AT PUBLIC SCHOOLS. — By direction of the Board of Superintendents of the Department of Education, City Superintendent Maxwell has instructed the district superintendents to place the part-time system devised by Dr. William Ettinger, principal of public school No. 147, on trial generally throughout the city. It is stated that this system, which has been in use experimentally at a number of schools for several months past, will probably be adopted formally by the Board of Education in time for the autumn term for all schools where there are part-time classes, if it continues to meet with success. The system requires the two classes, which use one class room, to attend school twice a day. Class A occupies the room from 8.30 to 10.30 in the morning, plays quiet games under the direction of a teacher from 10.30 to 11.30, goes home for lunch between 11.30 and 12.30, and takes its second period in the class room from 12.30 to 2.15 P.M. Class B goes into the class room at 10.30 and remains till 12.30, when it goes to lunch. At 1.30 it returns, and, after playing games until 2.15 it re-enters the class room and remains until 4 o'clock. While it is at present to be employed only in schools where the excess of pupils has rendered the part-time plan necessary, the Ettinger system is believed to be actually more scientific for a considerable proportion of school children than the full-time system. The best pedagogical authorities are of the opinion that the smaller children should have shorter periods in the class rooms and longer recesses than are now provided in the regular courses.

Obituary.

AMBROISE A. LIEBAULT, M.D.

The death of Dr. Ambroise A. Liébault of Nancy, France, whose name is associated with the modern use of hypnotic suggestion as a therapeutic agent, is announced. He studied medicine in Strassburg, taking his doctor's degree in 1850. Soon after entering upon practice, he began the study of hypnotic suggestion and settled in Nancy, opening there a clinic for the treatment of the poor by suggestion. His reputation and experience rapidly grew, and, although for years he was looked upon as an imposter by the more conservative, his principles were later generally accepted and the Nancy School of Psychotherapy was established, with the co-operation of Bernheim, Beaunis and Liégeois. His work antedated Charcot's in the same field. During recent years, although differing widely from his more distinguished contemporary in the theory of hypnotism, he had a wide following, and undoubtedly has had a definite influence for good in the establishment of treatment by suggestion. He was honorary president of the first and second congresses of hypnotism and died finally at the ripe age of eighty years, having convinced the world of his absolute honesty of purpose and sincerity.

Miscellany.

DEATHS UNDER ANESTHETICS.

Commenting on a recent death from chloroform anesthesia, the *Medical Press* draws the following conclusions, which we imagine will not receive unqualified assent in this country:

Last week a tragic death took place under chloroform at the West London Hospital. The victim of the unfortunate accident was a kitchen maid, who died after the administration of one drachm of chloroform. As commonly happens, the amount of the anesthetic was small, so that the cause of death must be sought in other directions, such as shock and mental depression and fright. The theory that the danger of chloroform depends on the dose and the subsequent devices to measure and regulate the amount will be found to be advocated mainly by anesthetists and others who are interested in pushing some particular inhalation apparatus. A certain percentage of deaths must occur, at any rate in our present state of knowledge, whatever drug be used to procure general anesthesia. Chloroform is used so much oftener than ether that the absolute number of deaths from its use is naturally far greater. On Feb. 28 a woman died under ether at Blackburn Infirmary, when the main part of a serious operation had been performed. A death from nitrous oxide is reported in the issue for Feb. 20, 1904, of *American Medicine*. In short, the annals of medical science remind us that death may occur under wellnigh if not quite all known general anesthetic agents.

Correspondence.

A NATIONAL SOCIETY FOR THE STUDY OF TUBERCULOSIS.

Baltimore, March 29, 1904.

Mr. Editor: For the purpose of discussing the question relating to organizations for the study of tuberculosis in this country, the following met at the College of Physicians, Philadelphia, on the afternoon of March 28: Howard S. Anders, Philadelphia; J. M. Anders, Philadelphia; William M. Angney, Philadelphia; Henry G. Beyer, U. S. Navy; Herman M. Biggs, New York; Jonathan J. Black, New Castle, Del.; Oliver A. Blumenthal, Syracuse, N. Y.; Vincent Y. Bowditch, Boston; M. J. Brooks, New Canaan, Conn.; Herbert C. Clapp, Boston; J. Solis Cohen, Philadelphia; Solomon Solis Cohen, Philadelphia; W. M. L. Coplin, Philadelphia; Frank A. Craig, Philadelphia; Alex. H. Davisson, Philadelphia; B. H. Detweiler, Williamsport, Pa.; A. H. Doty, New York; J. W. Ellenberger, Harrisburg; W. B. Fetterman, Jr., Philadelphia; Lawrence F. Flick, Philadelphia; F. Forchheimer, Cincinnati; Albert C. Getchell, Worcester, Mass.; William B. Hackenburg, Philadelphia; H. A. Hare, Philadelphia; Charles J. Hatfield, Philadelphia; Henry D. Holton, Brattleboro, Vt.; A. Jacobi, New York; Henry Barton Jacobs, Baltimore; Edward G. Janeway, New York; Herbert M. King, Liberty, N. Y.; S. A. Knopf, New York; Alexander Lambert, New York; H. R. M. Landis, Philadelphia; Charles M. Lewis, Philadelphia; Daniel Lewis, New York; D. J. McCarthy, Philadelphia; James Alex. Miller, New York; Charles H. Miner, Wilkes Barre, Pa.; Charles L. Minor, Asheville, N. C.; J. H. Musser, Philadelphia; Estes Nichols, Augusta, Me.; George W. Norris, Philadelphia; William Osler, Baltimore; Jay Perkins, Providence; W. H. Peters, Providence; C. O. Probst, Columbus, Ohio; John H. Pryor, Ray Brook, N. Y.; Mazyck P. Ravenal, Philadelphia; DeLancey Rochester, Buffalo; Milton J. Rosenau, Washington; J. T. Rothrock, Mont Alto, Pa.; W. B. Stanton, Philadelphia; George M. Sternberg, Washington; Elwell Stockdale, White Haven, Pa.; Arthur K. Stone, Boston; J. Edward Stubbert, New York; J. M. Taylor, Boise, Idaho; James Tyson, Philadelphia; T. Mellor Tyson, Philadelphia; Josephus T. Ullen, Germantown, Pa.; Agnes C. Victor, Boston; Joseph Walsh, Philadelphia; Samuel B. Ward, Albany; William H. Welch, Baltimore; J. M. Willcox, Philadelphia; Francis H. Williams, Boston; J. C. Wilson, Philadelphia.

Prof. William Osler of Baltimore presided and Dr. Henry Barton Jacobs of Baltimore acted as secretary.

After a full discussion participated in by Drs. Daniel Lewis, Minor, Flick, Knopf, Solomon Solis Cohen, James Tyson, Stubbert, Pryor, Holton, Biggs, Rothrock, Jacobi, Janeway, Hare, Sternberg, Welch, Forchheimer, Ravenal, Rochester and Ward, Dr. Lawrence F. Flick of Philadelphia offered the following resolution which was seconded by Dr. Forchheimer and carried unanimously: *Resolved*, "That we here assembled do now organize ourselves into a United States society for the study of tuberculosis." It was then moved by Dr. George M. Sternberg of Washington and seconded by Dr. Hare of Philadelphia "that the Chair appoint a Committee of five to prepare a constitution and by-laws for such a society." This motion was carried unanimously. The Chair appointed Dr. Edward L. Trudeau, Dr. Herman M. Biggs, Dr. Lawrence F. Flick, Dr. William H. Welch and Dr. George M. Sternberg as that Committee.

It was farther moved by Dr. Sternberg and carried unanimously "that the Chairman and Secretary of this meeting be *ex-officio* Chairman and Secretary of the Committee." Dr. Ravenal then moved and it was unanimously carried, "that it is the sense of this meeting that the committee call us together for organization at Atlantic City during the week of the meeting of the American Medical Association."

Previous to the meeting an abstract of Professor Maragliano's lecture was read.

The meeting then adjourned.

Henry Barton Jacobs, M.D., *Secretary*.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 19, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.	
New York . .	3,908,644	1,707	503	23.25	25.90	2.34	2.16	.41	
Chicago . . .	2,021,086	578	138	21.79	23.70	1.70	2.42	1.21	
Philadelphia	1,407,968	634	153	26.18	22.88	1.73	2.84	3.31	
St. Louis . .	633,606	—	—	—	—	—	—	—	
Baltimore . .	542,229	215	63	23.72	12.56	.93	2.79	—	
Cleveland . .	444,251	—	—	—	—	—	—	—	
Buffalo . . .	400,645	—	—	—	—	—	—	—	
Pittsburg . .	362,403	167	—	27.54	19.76	3.59	4.19	6.58	
Cincinnati .	338,277	—	—	—	—	—	—	—	
Milwaukee .	325,990	—	—	—	—	—	—	—	
Washington .	300,776	—	—	—	—	—	—	—	
Providence .	196,744	80	23	22.50	21.25	1.25	3.75	—	
Boston . . .	617,950	253	67	21.34	20.95	2.76	.79	1.18	
Worcester . .	186,925	26	15	3.85	19.25	—	—	—	
Fall River . .	119,349	32	13	15.62	18.75	3.12	—	—	
Lowell . . .	104,402	35	10	11.43	14.28	—	—	2.86	
Cambridge .	100,998	34	6	20.58	20.58	2.94	—	—	
Lynn	73,875	20	2	5.00	—	—	—	—	
Lawrence . .	72,348	34	12	14.74	20.58	—	5.88	2.94	
Springfield .	72,020	27	8	37.03	7.40	—	—	—	
Somerville .	70,413	20	4	15.00	15.00	—	—	—	
New Bedford	68,863	28	8	3.57	25.00	3.57	—	—	
Holyoke . . .	50,538	13	5	7.70	15.40	—	—	—	
Brockton . .	46,801	6	3	16.67	—	—	—	—	
Newton . . .	39,310	8	1	25.00	—	—	—	—	
Haverhill . .	39,061	11	2	—	9.09	—	—	—	
Malden . . .	37,205	10	4	10.00	40.00	10.00	—	—	
Salem	37,188	9	2	22.22	—	—	—	—	
Chelsea . . .	36,499	15	2	13.33	6.67	—	—	—	
Pittsburg . .	36,353	5	1	—	40.00	—	—	—	
Taunton . . .	34,577	18	3	—	16.67	—	—	—	
Everett . . .	30,209	8	3	12.50	—	—	—	—	
North Adams	29,201	3	2	33.33	—	—	—	33.33	
Quincy . . .	26,798	14	3	28.57	14.28	—	—	—	
Gloucester .	26,121	—	—	—	—	—	—	—	
Waltham . . .	25,797	8	—	25.00	25.00	12.50	—	—	
Brookline . .	23,576	4	—	—	50.00	—	—	—	
Pittsfield . .	22,870	13	—	7.70	30.80	—	—	—	
Medford . . .	21,956	8	1	50.00	12.50	—	—	—	
Chicopee . .	21,692	7	3	14.30	—	—	—	—	
Northampton	20,314	3	1	33.33	—	—	—	—	
Beverly . . .	15,807	1	—	—	—	—	—	—	
Leominster .	15,711	—	—	—	—	—	—	—	
Clinton . . .	15,694	3	2	—	—	—	—	—	
Adams . . .	14,745	—	—	—	—	—	—	—	
Attleboro . .	14,561	4	3	25.00	25.00	—	—	—	
Hyde Park . .	14,500	10	1	20.00	40.00	—	—	—	
Newburyport	14,478	5	2	—	—	—	—	—	
Woburn . . .	14,315	6	2	—	50.00	—	—	—	
Melrose . . .	13,819	3	—	—	33.33	—	—	—	
Westfield . .	13,809	3	—	—	33.33	—	—	—	
Milford . . .	13,771	—	—	—	—	—	—	—	
Marlboro . .	13,609	2	1	—	—	—	—	—	
Revere . . .	13,609	5	—	20.00	40.00	—	—	—	
Framingham	13,974	—	—	—	—	—	—	—	
Peabody . .	13,406	—	—	—	—	—	—	—	
Gardner . . .	13,324	5	2	20.00	—	20.00	—	—	
Southbridge .	11,716	1	1	—	100.00	—	—	—	
Watertown .	11,575	8	2	12.50	25.00	—	—	—	
Weymouth . .	11,350	2	0	50.00	—	—	—	—	
Plymouth . .	11,139	—	—	—	—	—	—	—	

Deaths reported, 4,111; under five years of age, 1,077; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 926; acute lung diseases 935, consumption 495, scarlet fever 44, whooping cough 11, cerebrospinal meningitis 22, smallpox 9, erysipelas 22, puerperal fever 14, measles 64, typhoid fever 53, diarrheal diseases 90, diphtheria and croup 81.

From whooping-cough, New York 5, Chicago 2, Philadelphia 1, Pittsburg 2, Boston 1. From smallpox, New York 1, Philadelphia 7, Pittsburg 1. From cerebrospinal meningitis, New York 16, Baltimore 1, Boston 1, Springfield 1, Brockton 1, Medford 1, Attleborough 1. From erysipelas, New York 13, Chicago 5, Baltimore 1, Boston 1, Cambridge 1, Somerville 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending March 5, the death-rate was 18.6. Deaths reported, 5,436; acute diseases of the respiratory organs (London) 202, whooping cough 176, diphtheria 71, measles 139, smallpox 2, scarlet fever 33.

The death-rate ranged from 8.7 in Handsworth to 29.8 in Norwich; London 17.9, West Ham 17.7, Brighton 18.2, Southampton 17.6, Plymouth 20.1, Bristol 17.6, Birmingham 21.1, Leicester 16.5, Nottingham 20.3, Liverpool 22.3 Bolton 13.4, Manchester 21.3, Salford 17.5, Bradford 18.8 Leeds 22.0, Hull 16.8, Cardiff, 18.9, Rhondda 27.7, Wigan 25.7, Hornsey 10.3, Plymouth 20.1.

METEOROLOGICAL RECORD.

For the week ending March 19, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 13	29.84	28	35	21	47	51	49	N W	N	12	20	F.	F.	0
M . 14	30.00	30	38	22	51	55	53	N W	S	9	14	O.	O.	0
T. . 15	29.76	32	34	30	95	100	98	N	N W	8	14	N.	N.	.15
W . 16	30.00	28	33	22	69	80	64	N W	N W	12	31	O.	C.	.01
T. . 17	30.34	30	39	22	51	47	49	N W	S	18	14	C.	C.	0
F. . 18	29.90	33	36	30	94	91	92	S E	N W	7	17	N.	O.	.30
S. . 19	29.92	40	48	32	57	62	60	S W	S	14	20	C.	O.	0
☞	29.97		38	26			66							.46

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † indicates trace of rainfall. ☞ Mean for week.

DELAYED PUBLICATION. — The strike, among printers and pressmen, is now over. And it is hoped to issue the JOURNAL on time from April 14th.

SOCIETY NOTICE.

AMERICAN NEUROLOGICAL ASSOCIATION. — The American Neurological Association has fixed the time of its meeting at St. Louis for Sept. 15, 16 and 17; and this will be immediately followed by the sessions of the various medical departments of the Congress of Arts and Sciences, beginning Sept. 19.

FRANK R. FRY, M.D., Secretary.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 2, 1904.

J. M. EDGAR, surgeon. Detached from the "Wisconsin" and ordered to the "Monadnock," March 30.

J. P. TRAYNOR, assistant surgeon. Detached from the "Frolic" and ordered to the "Albany."

C. M. OMAN, assistant surgeon. Detached from the "Monadnock" and ordered to the "Frolic."

R. O. MARCOUR, assistant surgeon. Detached from the "Dixie" and ordered to duty with the Marine Battalion at Guantanamo, Cuba, March 31.

W. IE. G. HIGH, assistant surgeon. Detached from the "Constellation" and ordered to the Midway Islands for duty with the Marine detachment at that place, sailing from San Francisco, Cal., April 3, via the "Supply."

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MARCH 31, 1904.

WASDIN, EUGENE, surgeon. Granted leave of absence for one month from April 1, 1904, on account of sickness. March 30, 1904.

ROSENAU, M. J., passed assistant surgeon. Detailed to represent service at meeting of Tuberculosis Committee, College of Physicians, Philadelphia, Pa., March 28. March 26, 1904.

CUMMING, H. S., passed assistant surgeon. Granted leave of absence for ten days from April 5. March 25, 1904.

LAVINDER, C. H., passed assistant surgeon. Granted leave of absence for two days from March 29. March 26, 1904. Granted three days' extension leave of absence from March 31. March 26, 1904.

GRUBBS, S. B., passed assistant surgeon. Granted ten days' extension of leave of absence from March 31. March 28, 1904.

BILLINGS, W. C., passed assistant surgeon. Granted leave of absence for two months and three days from April 30, 1904, with permission to go beyond the sea. March 23, 1904.

RICHARDSON, T. F., assistant surgeon. Detailed to attend conference of State Health Officer and County Health Officers of TEXAS, March 31. March 29, 1904.

AMESSE, J. W., assistant surgeon. Granted leave of absence for two months and fifteen days from May 1. March 26, 1904.

BOGGESS, J. S., assistant surgeon. Granted leave of absence for two days from March 30. March 29, 1904.

Original Articles.

INFECTIOUS ARTHRITIS.[1]

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE following paper is presented without apology, however unusual it may be for an orthopedic surgeon to write upon a subject belonging so largely to the realm of general medicine, since it is only by the most exact knowledge of the various aspects of such diseases that the treatment of the disabled joints which result from them can be intelligently carried out. It was in this spirit that the work was originally undertaken, and it is my hope that the results may be of as distinct service to others in the treatment of the acute disease as they have been to me in the treatment of the results of the disease. It is my hope at the same time that the confusion which exists in regard to the various non-tubercular joint diseases may be somewhat less as the result of this communication.

The term here used may not be above criticism, but it is simple and represents a reasonable mode of approach to this large class of disease which includes many of the cases of "rheumatism" and many of the other conditions which have been variously classified. Subdivisions under the term will undoubtedly follow, based upon the organism which may be present in a given case, or upon the results of the presence of that organism, but as the principles underlying all these conditions are the same it is thought wise to consider the whole subject in this form, allowing the individual observer to make the special application. For the opportunity to study the acute cases, especially the so-called acute rheumatism, I am indebted largely to the medical staff of the Massachusetts General Hospital, all of the members of which have been most kind and helpful in the work.

The term infectious arthritis is used to designate a joint disease resulting from the presence within the body of some infectious organism, the symptoms being due either to the presence of the organism itself within the joint or to some toxine produced by that organism in some other part of the body. The condition is rarely primary, but usually appears as a sequela of some other disease, representing in all probability the extension of an infection. The primary disease may be mild and attract but little attention, so that in a large number of cases, especially the so-called acute rheumatisms, the few symptoms of the primary disease are often considered to be prodromata of the joint lesion. Upon careful inquiry it will be found that in the majority of cases definite symptoms did precede the trouble in the joint and that these are too varied both in character and location to be fairly considered prodromata, especially as with the majority of persons having similar symptoms no joint disease develops. It seems more reasonable therefore to consider the joint condition as a sequela of the original disease rather than that the joint disease itself is an entity. This is exactly the position that is held in regard to much of the disease of the middle ear or the mastoid cells, and as with these and other analogous conditions the same thing is true with this type of joint lesion, that the secondary is frequently more serious and annoying than the primary disease.

Infectious arthritis may result from practically any of the infectious or pus producing organisms and the type of the lesion or its character will naturally depend upon the special organism involved. The disease may be mild and of short duration with complete recovery, or it may be very severe with much suffering and at times fatal termination. One joint may be affected, and if so the disease in this joint may be very slight or may go on to considerable destruction of the articulation; on the other hand, many of the joints may be involved, — at times all of the joints in the body, — and, as when the single joint is affected, there may be severe permanent changes or the disease may soon be over, leaving little to show for its presence.

In this type of disease the onset is usually abrupt, at times symptoms of great acuteness resulting within a few hours. At other times the process is more insidious and gradual, some weeks being required for its development. It is, however, characteristic of this general class of disease, whether mild or severe, of abrupt onset or gradual development, that all of the joints that are to be affected become affected at practically the same time. With those organisms which have but a short period of active life the joints which are to be affected become so at once and there is no farther extension to the other joints. With some of the other organisms, such as the gonococcus, which may live in the various tissues for many weeks, while the beginning of the joint disease may be abrupt, other joints may develop symptoms later at any portion of the time during which the organism is active, but even under these conditions, the progression is confined to a few months at most, and is in marked contrast to the type of disease described under the head of "atrophic or rheumatoid arthritis," in which, although many or all of the joints may be involved, the extension of the disease is very gradual, joint after joint breaking down at long intervals, so that the complete extension of the disease is not reached until many years have elapsed.

With infectious arthritis the symptoms depend upon the severity of the infection; if it be mild there may be little if any temperature, the pulse but slightly accelerated, the glandular enlargement not marked, with only a serous effusion into one or more of the joints which subsides in a few days, with or without treatment, leaving no permanent impairment. If the infection is more profound the temperature is more elevated, the pulse is much accelerated, the blood count shows a definite increase of the leucocytes, the lymphatic glands are enlarged

[1] At about the time this paper was completed a paper by Dr. T. J. Harrington appeared in this JOURNAL Jan. 28, 1904, emphasizing some of the features here described. In spite of the danger of repetition the paper is still published, as too much attention cannot be attracted to this subject at the present time.

throughout the body and there is marked effusion into the affected joints which frequently goes on to the infiltration of the membranes and ligaments about the joint.

In the exposed joints, especially in the fingers, the swelling produces a distinct spindle shape, and at first glance may be mistaken for the spindle joint of the atrophic or "rheumatoid" arthritis. At first the swelling is simply a distension of the synovial sac, but unless this is absorbed within a few days the membranes and periarticular structures become infiltrated and the swelling persists, but not from fluid within the joint, but from the swelling of the membranes and the soft structures about the joint. In the healing or organization which follows such a condition, the membranes if left to themselves usually adhere so that the joint motion is restricted either wholly or in part.

The joint lesion in infectious arthritis is, in the majority of cases, of the nature of a toxemia. The organisms are not found in the joint, but the marked hyperemia of the membranes, the rapid increase in the joint fluid, with the general aspect of the case in its onset, clinical course, and its behavior under treatment, all suggest the result of an infection.

At times the organism itself may be present within the joint, and whenever this is the case the symptoms are much more severe, and not infrequently marked destructive changes result. Here, as with practically all of the other features, the extent of the destruction depends upon the organism present. Occasionally, in a given case many of the joints may show the changes, suggesting a toxemia, while in some one or two joints the organism itself may be present producing in those joints the more serious destructive changes, while the other joints in which the symptoms were those of a toxemia recover with less, or entirely without, impairment of the joint function.

The origin of the infection or the point from which the absorption has taken place, is, of course, of considerable importance and at times can be definitely determined and the organism isolated. At other times this is not possible, but it is not, however, unreasonable to consider such cases as infectious, since the pathological appearance of the joints is in keeping with this theory, as well as the entire clinical aspect together with the fact that the cases are in every way similar to those in which the nature of the infection can be definitely proven. The same reasoning is used in many of the ordinary infectious diseases in which the nature of the infection has not as yet been demonstrated.

It is, it seems to me, only in this way that many of the cases can be understood, and when such a theory is once accepted, it serves to connect and to make comprehensible the various opinions which have at times been advanced in connection with rheumatism or the rheumatoid diseases. It explains at once the reports of the finding of organisms in the joints of certain cases of rheumatism, as certain cases of infectious arthritis undoubtedly have organisms in the joint, but as in only a few of the cases is the infection severe enough for them to be present it is easy to understand why the organism is found so infrequently and why in many cases even those who have urged the germ theory most strongly are unable to detect them. It also makes comprehensible the fact that the organisms which have recently been reported by two or three groups of men are distinctly different in their characteristics. It explains the fact that some of the cases of rheumatism are mild and some are severe; that some of the mild cases are of short duration while others last for a much longer period; that some of the severe cases are of much longer duration than others; that some of the cases which are severe may have little elevation of temperature (this being particularly true of the gonococcus infection) while with other cases, really no more severe, the temperature is very high, the so-called "rheumatic fever;" that some of the acute cases become chronic, or do not recover promptly; that with some of the acute cases which become chronic one joint may be troublesome, or the chronic condition may persist in all of the joints; that with some the heart is affected, since the endocardium is not infrequently involved in the general septic processes, but this feature would naturally be expected only when the infection is quite severe. It makes comprehensible, also, the type of disease originally described by Still as simulating rheumatoid arthritis but being more rapid in its onset with glandular enlargement and other evidences of infection and, according to Still, ending fatally, but it also explains why some of the cases of Still's disease are now being reported as going on to complete recovery, the recovery or the general course of the disease depending naturally upon the severity of the infection.

The result of the infection in a given case must necessarily depend upon the organism from which the infectious element is absorbed. If due to the typhoid bacillus, the joint process may consist simply of a toxemia with a slight increase of temperature, with a serous exudate into the joint, and with recovery in a short time leaving no permanent change in the joint function. The same organism may, on the other hand, be present in the joint in pure culture causing severe destructive changes. In the first case, the process, if seen in the spine, would ultimately show nothing abnormal, while in the latter case the evidences of the more serious condition would at once be apparent, with the limitation of the motions and in the extreme cases when there had been bone destruction, a true kyphos.

That which is true of the typhoid bacillus is true also of the other organisms. The pneumococcus, the streptococcus, the staphylococcus, the gonococcus, the influenza bacillus, dysenteric bacillus, etc., may all produce a toxemia with joint changes which would be in keeping with such a condition, or they may be present in a given joint in pure culture, producing more



FIG. 1.— Showing the swollen and distorted fingers of Infectious Arthritis without bone or cartilege change. Case 16.



FIG. 2.— The hand of Fig. 1, showing no atrophy of the joint structures, although all of the joints of the fingers and wrist are stiff. Case 16.



FIG. 3.— Atrophic or Rheumatoid Arthritis, showing the atrophy of both bone and cartilage, with fusion of the carpal bones and actual telescoping at the metacarpo-phalangeal articulations.

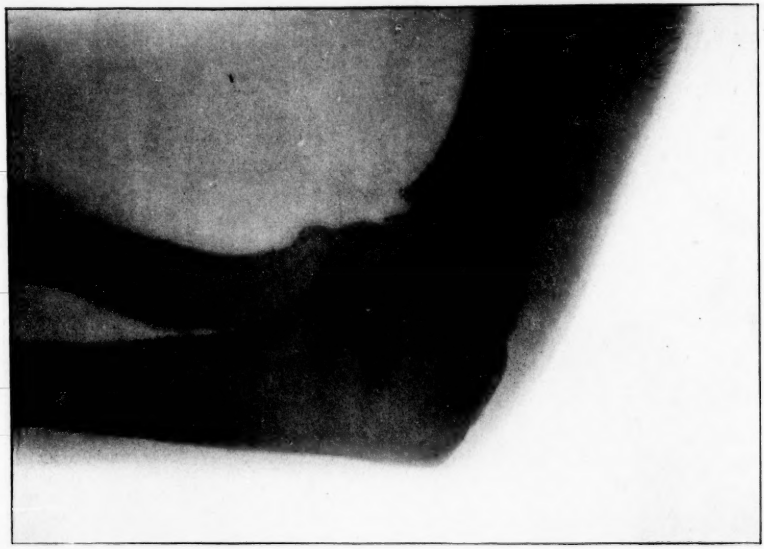


FIG. 4.—Hypertrophic or Osteo arthritis, showing the elongation of both the coranoid and the olecranon processes due to the hypertrophy of the edge of the articular cartilage, without the fusion of the bones. Some motion is present, but is limited by the thickened cartilage.

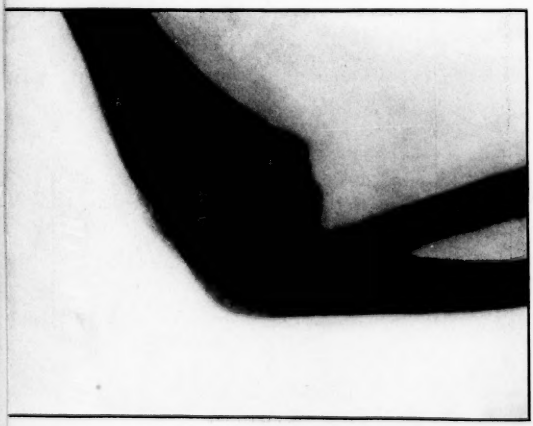


FIG. 5.—The result of Infectious Arthritis with suppuration and bone destruction, showing the character of the bone thickening. The bones are fused together, causing complete anchylosis. Case 7.

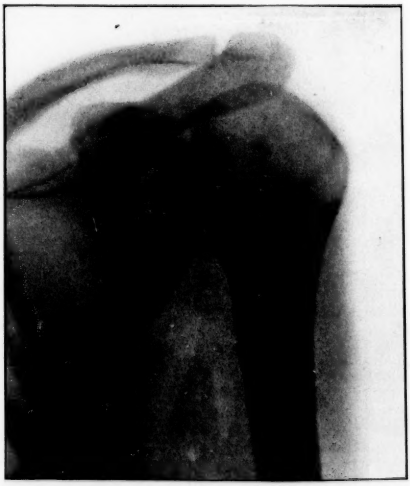


FIG. 6.—Infectious Arthritis without suppuration, but with a perfectly stiff shoulder due to the infiltration of the capsule and the consequent obliteration of the joint. There is no bone or cartilage atrophy or hypertrophy. Case 7.

serious lesions. The pneumococcus and the streptococcus, as is true with the typhoid bacillus, may cause marked destructive changes of the bones as well as of the soft parts. The gonococcus, on the other hand, rarely leads to bone changes, but is associated with much thickening of the capsule and interference with joint function. It is possible that a similar condition may result from the tubercle bacillus, but it seems more probable in the tubercular cases that the joint symptoms suggesting "rheumatism" are due to toxines which result from some of the other organisms which are almost always present with the tubercle bacillus (the so-called mixed infection) in the last stage of tuberculosis, the stage when the so-called rheumatic symptoms are most seen. It is also possible, and indeed probable, in the light of recent reports, that organisms have been found or will be found which will explain some of the cases which, up to the present time, have been shown to be undoubtedly infectious, but in which the definite organism could not be found.

The character of the onset with the different organisms varies. With the typhoid bacillus the onset of pain is sudden, but the temperature requires a few days before the maximum is reached, this lasting a few days, after which the decline also is slow, suggesting at once the character of the chart of typhoid fever as it is usually seen. The streptococcus and the pneumococcus usually have a more abrupt onset with the sudden rise of temperature and with a rather rapid fall if the symptoms represent a toxemia, or continuing at the height until drainage is obtained or until the abscess is walled off if the organism is present. With the pneumococcus the joint symptoms may follow the process in the lung or may develop without other signs in the body. With the gonococcus the onset is usually very abrupt, frequently within a few hours, with marked swelling, pain and tenderness, but with only a moderate elevation of temperature. With this organism the condition is rarely grave unless the infection becomes more general (the organism has been found in pure culture in the heart), but means in the severe cases without treatment a long period of suffering with the ultimate loss of function of the joint, due to the changes in the membranes and periarticular structures.

In the differential diagnosis of infectious arthritis from the other types of rheumatoid disease, in case the history, the general appearance of the patient, and the local lesion is not distinct, the x-ray is of the utmost importance. In infectious arthritis the process is a local inflammation; the joint is swollen; the capsule, if the inflammation has lasted for any length of time, is thickened, giving the spindle shaped swellings (Fig. 1) in any exposed joints, with practically no change in the bone or cartilage (Fig. 2) unless the process is of the destructive nature, in which case the mere extent of the destruction would make the recognition of the condition easy.

In atrophic arthritis, with which the condition will be most often confounded, from the very beginning of the disease, atrophy takes place, at first showing in the cartilage between the bones, but ultimately in the bones themselves. (Fig. 3.)

In infectious arthritis, the bones are of normal density; the cartilage is present and of normal thickness (Fig. 6), and although the joints may be ankylosed, the ankylosis is due to the adhesions which have resulted as a part of the inflammation. In atrophic arthritis, the ankylosis, if it takes place, may be due either to adhesions formed from the disintegrated material resulting from the atrophy or there may be actual fusion of the bones together.

In case the infectious arthritis goes on to more destructive changes in the repair there may be new bone formed about the joint and true ankylosis result, but the appearances are entirely different, as shown in the illustrations, from the atrophic or rheumatoid arthritis, and also the hypertrophic or osteo-arthritis with which, because of the marked thickening, the condition in this stage would be most apt to be confounded. In hypertrophic arthritis the thickening is always primarily at the edge of the articular cartilage growing outward from this line as is shown in Fig. 4. The joint motion may be much impaired, but except in the spine and in a few rare instances does complete ankylosis take place. In infectious arthritis the new formation of bone is similar in every way to the new formation of bone which follows a septic periostitis. It is not a thickening of bone at the edge of the cartilage, but thickening of the bone at the point of infection wherever the periosteum is present as is shown in (Fig. 5).

The blood in infectious arthritis in the beginning and during the active stage shows a marked increase of the leucocytes with usually a high percentage of hemoglobin. As the disease progresses and the acute symptoms subside the increase of the leucocytes gradually disappears, and the percentage of hemoglobin becomes less so that in the later stages of the disease a secondary anemia is almost invariably present. In atrophic arthritis the leucocytes are not increased and the secondary anemia does not develop. The extent to which the changes in the blood occur naturally depends upon the severity of the infection, but even in the comparatively mild cases, the increase of the leucocytes is quite marked.

The lymphatic glands in infectious arthritis are almost always somewhat enlarged in the beginning of the process, and this enlargement remains until the toxemia has been overcome, when it gradually and entirely subsides. If any one joint develops symptoms more pronounced than the others or in case suppuration develops, the glands which would be affected by that joint naturally are larger than those in other parts of the body, and at times, in the particularly virulent cases, may go on to suppuration.

The urine of infectious arthritis is not peculiar unless the infectious process be quite profound, in which case the characteristics are

simply those of a septicemia, and what is true of the kidneys is true also of the other organs.

The treatment of infectious arthritis must be considered in two parts, that which pertains to the general condition and that which is required for the local process. It is of the first importance to keep up the general health as much as possible, and for this purpose all the details of general care should be observed, as they would be carried out in a case of septicemia. In the very beginning, if the disease be acute, with much fever, naturally the diet should be restricted, but after this period has passed, the diet should be wholesome and generous, with the idea of increasing the general strength and nutrition as much as possible. In the mild cases with good general care recovery may take place entirely without the aid of drugs, but if drugs are to be used tonics and reconstructives are indicated. In the early stages in many of the cases salicylic acid or some of its compounds will be of distinct help to relieve pain, but in case this drug is to be used it should be borne in mind that in many of the cases it affords no relief whatever, and also that if it is to be of help that the improvement is noticed at once. It should also be borne in mind that although it relieves pain it is a distinct depressant, disturbing both the action of the heart and the digestion, and if continued for any considerable length of time is distinctly harmful, as it lessens the resisting power of the patient. For this reason in case salicylic acid is to be used it should not be continued for more than a few days, after which in the majority of cases it is possible to entirely dispense with it, using instead some of the simple alkalies with at the same time the use of large quantities of water internally.

It is undoubtedly essential that the eliminative functions, both from the kidneys and the bowels, should be kept as near the normal standard as possible. For the former the large quantity of water with the simple alkalies, such as the bicarbonate of soda or potassium, the phosphate of soda or the salts of lithium, are usually sufficient, and any tendency to the increased acidity, due either to the presence of the formic or uric acid, which are a result of the condition and not the cause, is entirely overcome. For the intestinal elimination cathartics should, of course, be used if needed, and frequently olive oil in half ounce doses once or twice daily is helpful to improve or correct this feature. Aside from this the medication should be planned with reference to the infection, and tonics and reconstructives should be used freely with fresh air, stimulating bathing, and any such measures as improve the body tone.

It is probable, in the light of the pathological and clinical nature of the disease, that as the condition represents so probably an infection, that some anti-toxine may be discovered, the use of which will control the disease. At this time observations are being made with the anti-streptococcus serum, but as yet the results of this treatment are too recent to report definitely.

For the local treatment in the active stage there is comparatively little to be done other than to protect the affected joint, and by means of hot applications, either moist or dry, liniments and such remedies, to relieve the discomfort as much as possible. If the process be acute, fixation will undoubtedly give relief, and this can be accomplished by the application of some form of splint, or a pillow folded about the leg and held with straps is oftentimes enough. At times complete fixation is necessary, in which case the plaster of Paris bandage is the most satisfactory. In arranging the position of the joint during this active period, the danger of contractures or dislocations should be borne in mind, and after the inflammation has passed, in case any stiffness or impairment of motion remains, passive motion, manipulation, and massage should be used in order to restore the joint to its normal function as soon as possible. In case the joint lesion represents a toxemia the recovery is rapid, so that within a week or two the acute symptoms have passed and motion should be encouraged. If the infection prove to be of the more serious type in which the organism itself is present in the joint more radical measures are frequently indicated and the joint should be opened and thoroughly irrigated. The infiltration of the capsule seen in this more severe type of the disease and which is responsible for the impairment of motion in many of the cases, particularly those due to the gonorrheal infection, does not take place to any marked degree until after the first three or four weeks. Up to that time the infection and swelling is confined largely to the joint itself. For this reason, if the improvement is not marked at the end of the first three or four weeks, in case only one or two of the joints are involved, they should be opened and thoroughly washed out. The same principle holds in the cases of this nature in which many joints are involved, but as in these cases the virulence of the process is less severe, measures as radical as incision are rarely necessary. In some cases, especially those due to the presence of the pneumococcus or the streptococcus, the symptoms may develop so rapidly and indicate so definitely an active septic process in the joint that there can be no question but that the joint should be opened at once and thoroughly drained, it being frequently possible in this way to prevent the marked destructive changes which otherwise would take place.

In operating the joint should be as thoroughly explored as possible, and in the exposed joints, such as the knee or elbow, the opening should be made on both sides, so that the irrigation may be thorough. In the gonorrheal cases, which are probably those in which the operation is most commonly needed, simply flushing the joint with water at the temperature of 120° F. is sufficient to destroy the organism. With the infections due to other organisms, definite antiseptics will be required and any of them in proper strength may be used. In the gonorrheal cases the wounds should be closed tightly except for one or two strands of silk which are allowed to

remain in the joint for twenty-four or forty-eight hours. After that it is customary for the healing to take place rapidly, and the function of the joint to return almost as rapidly. The marked relief from pain in these gonorrheal cases which follows such an operation is at times very striking. If the organism present is a more active pus producing element, such as the pneumococcus or the streptococcus, the joint should not only be flushed out, but drainage of some sort should be inserted so that repeated irrigations may be possible, and any accumulations of pus which may form, easily escape.

With the pneumococcus infections, if the joint alone is affected, the prognosis is good and healing takes place rapidly after the joint is once thoroughly opened. With the streptococcus the healing is apt to be more delayed, requiring a longer course of treatment, and the end result almost invariably shows some impairment of function of the affected joint. As both of these organisms, and several of the others, if allowed to remain in the joint for any considerable length of time attack the bone as well as the soft parts, naturally the operation should be performed at the earliest possible moment after the diagnosis is made.

In many of the cases of infectious arthritis and even those which are quite mild after the acute swelling and sensitiveness has passed, instead of the joint returning to its normal size and function, some swelling persists and the joint remains sensitive, weak and uncertain for an indefinite period. This condition is due usually to the fact that as a part of the original inflammation the membranes are swollen, and instead of contracting to their normal size as the inflammation subsides, the swelling remains and leads to the formation of folds and fringes, so that a villous arthritis results. It is also true that in certain cases the fibrin in the synovial fluid is precipitated, so that after the swelling goes down these masses of fibrin remain and act within the joint, as a foreign body, producing irritation and symptoms exactly as would any other foreign body. Both of these conditions should be definitely recognized, and if after a reasonable length of time, with stimulating bathing and local tonic treatment, the part does not return to its normal size and function the joint should be opened, and these features removed. This undoubtedly explains the persistence of symptoms in many cases which are at first supposed to be simply acute rheumatism, but in which the symptoms do not entirely disappear, and what is considered as chronic rheumatism develops.

If, as is not infrequent in a considerable number of cases, the patients are seen for the first time after the acute symptoms have passed and after the thickening of the capsule has resulted, and the contractures or the other undesirable features have taken place, an effort should be made to improve the condition. If there are dislocations attempts should be made to reduce them; if contractions, they should be overcome; and every possible effort made to restore the joint to as near as possible its normal condition. In practically any case, no matter how extreme the condition may be, improvement is possible, but, of course, in varying degrees; in some the joints can be made nearly normal; in others the improvement is necessarily less marked, but an attempt should be made in any such case, no matter how severe the crippling may be, to improve the condition of the patient.

During all of this late period of the disease the rheumatic remedies are naturally not of the slightest use and should be carefully avoided, the whole plan of treatment, both internal and external, being to improve the patient's general health as much as possible.

The following cases are reported, as offering suggestive evidence to the conclusions presented above. It is to be understood that they are only suggestive, and do not pretend to offer positive proof:

Case I. Mr. C., a man thirty-five years of age, was seen at the Massachusetts General Hospital, giving the following history: Having previously been well, one week before entrance he started in with what apparently was a hard cold. There was general feeling of malaise with cough and considerable muco-purulent expectoration. The day before entrance several of the joints became swollen and tender, supposed to be rheumatism. One wrist and several of the other joints were involved. The temperature was but little elevated, the glands could be felt all over the body, and the blood count showed over 20,000 leucocytes. Under rest in bed with local warmth to the affected joints, and with salicylic acid the condition entirely cleared up, so far as the pain and swelling was concerned, in four or five days.

The case suggests an influenza or severe cold with a toxemia following in which the joints were involved.

Case II. A child of five years was seen at the Children's Hospital with trouble with the shoulder joint of two weeks' duration. At the time of the first examination the general condition was very poor, and the joint was swollen and reddened. A diagnosis of septic arthritis was made and the joint opened, the pus showing the pure culture of the pneumococcus. The recovery was rapid with a fairly good functional result.

In this case the joint symptoms were due to the pneumococcus which was present in pure culture.

Case III. Mrs. E. D. R. was seen at the Massachusetts General Hospital with Dr. F. C. Shattuck. She had a typical severe attack of lobar pneumonia with pleurisy, with a gradual subsidance of symptoms until two days before she was seen by me. At that time she began to have joint symptoms referred to the knees, left shoulder, hand and elbow and to the right elbow. There was swelling and marked tenderness on motion. The white count was naturally high during the penumonia, but had fallen so that at the onset of the joint symptoms it was 12,200. There was moderate glandular enlargement and a serous exudate into the joints. In a few days with nothing more than good care the joint symptoms subsided and the normal function returned, the condition probably representing a toxemia following the pneumonia.

CASE IV. E. E., a physician thirty years of age, was seen by me several years ago in reference to an attack of supposed rheumatism in several of the joints, particularly one knee. The onset had been abrupt and the symptoms in all of the joints but one knee soon disappeared. The swelling and pain in the knee persisted for two or three weeks and then disappeared leaving a normal joint. A few days before the onset of the joint trouble the patient had had a sharp attack of pharyngitis and the culture taken at the time of my first visit showed a pure culture of streptococcus.

The treatment consisted chiefly in tonics, with a splint for the knee, followed by a bandage for a short time after the swelling subsided.

The joint symptoms in this case were of the nature of a toxemia and probably came from the throat where the streptococcus was found in pure culture.

CASE V. J. H., a physician thirty years of age, had a sharp attack of dysentery from which there was marked prostration with much septic absorption. During the recovery, after the acute intestinal symptoms had subsided, when the patient was still very weak, symptoms developed very abruptly in one knee, one foot, and one sternoclavicular articulation. The joints were swollen and tender. The joint condition gradually improved under moderate protection during the stage of swelling, with active use as soon as this had subsided. The internal treatment consisted of the use of large quantities of water with tonics and stimulants. The sternoclavicular articulation and the knee recovered in a few weeks under protection but several months elapsed before the sensitiveness about the foot at the attachment of the tendon Achilles disappeared. Several years have now elapsed since the trouble developed, and no further trouble has followed.

The joint symptoms represented undoubtedly a part of a general toxemia, following the dysentery.

CASE VI. L. H., a woman forty-five years of age, was admitted to the Massachusetts General Hospital in August, 1903, and was under the care of Dr. J. J. Minot, at whose request she was seen by me.

The patient having previously been well, had had, three weeks before entrance, a sharp attack of pain and swelling in the right knee. One week later the right wrist and the joints of the fingers became red, swollen and painful and a few days later the left hand developed symptoms similar to the right, only less acute.

The condition presented the appearance of an acute articular rheumatism, and with good general care steadily and rapidly improved except the right wrist which remained swollen and gradually grew worse. The redness and swelling increased until suppurative changes were evident, when the joint was opened, thoroughly cleaned out, and drained. After this the healing went on rapidly and steadily. Before the operation there had been a moderate elevation of temperature. The case represents a toxemia with rapid recovery in all but one joint in which the suppurative changes indicated the presence of the organism itself. There was no growth on the ordinary culture media employed in this case.

CASE VII. Mrs. H. A., thirty-one years of age. The patient, the wife of a physician, was seen in September, 1902, giving a history of having been perfectly well up to a year and a half before, at which time she had an attack of erysipelas about the head. A short time after her recovery from this, the right shoulder, the left elbow, both knees and the right ankle became swollen and painful. Abscesses formed at the right shoulder, the right ankle and the left elbow, which discharged and rapidly healed. She was kept in bed for seven months and was considered very ill.

At the time of the examination, the left elbow was firmly ankylosed with no swelling or evidence of active joint disease; the right foot was stiff and in the position of valgus; the ankle and shoulder were completely ankylosed, and one knee was quite stiff. The condition undoubtedly represented a profound toxemia probably resulting from the erysipelas, associated with suppurative changes in some of the joints. There had been no extension of the disease and the type, as illustrated in the x-ray, Fig. 5, does not suggest atrophic arthritis or hypertrophic arthritis. In the joints in which the suppuration occurred, there is considerable formation of new bone, not the thickening confined to the edge of the cartilage, as is seen in hypertrophic arthritis, but the general thickening following an inflammatory process in which the periosteum or the general joint structures are involved. In the joints which did not suppurate there is no evidence of cartilage or bone atrophy. (Fig. 6.)

CASE VIII. Mr. J. B., twenty-eight years of age. In 1896, patient had an attack of gonorrheal arthritis, both knees, the right shoulder, the toes, the back and one finger being affected. After a few months the condition entirely cleared up except the lumbar spine and the left knee which continued to pain and have remained troublesome ever since. The knee joint has been aspirated several times and he has received much treatment at the various baths, none of which have yielded more than temporary relief. During periods of quiet the swelling and irritation of the joint subside but they are always made worse by active use.

On examination, the joints were normal except the lumbar spine which was quite stiff with some pain on motion, and the left knee which showed considerable thickening of the capsule with such a definite villous arthritis that the fringes could be palpated and readily demonstrated on motion. The condition is undoubtedly one in which for some reason following the toxemia of a gonorrheal process a few joints became more involved than the others. The condition in the affected joint at the present time is not a gonorrheal process, but the result of that infection, the symptoms at the present time being due entirely to the presence of the synovial fringes or villi and the mechanical irritation which their presence represents to motion. Naturally in such a case on any considerable amount of use, the fluid in the joint would increase, and aspiration or such other treatment as has previously been tried would give relief but would not cure the condition. The treatment which offers hope of cure must naturally be the thorough opening of the joint and the removal of the villi which are responsible for the irritation. The patient is awaiting operation.

CASE IX. J. L. Q., machinist, aged twenty-five years, admitted to the Massachusetts General Hospital Jan. 6, 1904. About one week before onset of the joint symptoms he had an acute attack of urethritis. The joints first involved were the feet, a few days later the elbows, both knees, back and several finger joints. The shoulders were unaffected. Some of the joints were not swollen at all; several of the others showed periarticular thickening with apparently no increase in the joint fluid. The spindle shaped swelling of the second phalangeal joint in the index finger of the right hand was very noticeable. The glands all over the body were moderately enlarged. During the stay in the hospital the temperature ranged from 99° to 100°; pulse was quickened, reaching 122. Hemoglobin 70°; whites 18,600; urine shows slight trace of albumen with occasional

casts and round cells. The improvement under good, general care was rapid.

The case represents an infectious arthritis of moderate severity following a gonorrheal arthritis, with little to produce permanent changes.

Case X. Mr. A. B., forty years of age, was seen in consultation with Dr. E. C. Boland. Shortly after a definite attack of gonorrhea, he developed symptoms in the left knee. The onset was abrupt; the swelling marked; the suffering very great, with no relief from the rheumatic remedies or from protection of the joint which was kept up for four weeks. Large doses of morphia were necessary to control the pain. After waiting four weeks without improvement the joint was opened and irrigated with water at the temperature of 120°; the wound closed, except for a strand of silk and sterilized dressings applied.

The pain was at once relieved by the operation and motion was possible within a few days, and function gradually and steadily improved.

The examination in this case of the fluid confirmed the diagnosis of gonorrheal arthritis.

Case XI. V. Y., a man forty-five years of age, was seen with Dr. H. F. Vickery at the Massachusetts General Hospital with what appeared at first to be an ordinary but severe case of acute rheumatism. The onset of joint symptoms and the early history was not noted so that the nature of the early infection is not known. The patient seemed quite sick with a moderate elevation of temperature, with a rapid pulse, and with the general enlargement of the glands, besides the swelling and pain in most of the large joints. With good general care the excess of the joint fluid was gradually absorbed leaving the periarticular structures considerably infiltrated. The patient's general condition did not improve and later on symptoms of valvular disease of the heart developed, which increased in severity and death followed in a few days. The pathologist's report was that death was due to a "septic endocarditis."

The case represents a profound toxemia with a final lesion involving the heart.

Case XII. Miss I. M. P., twenty-nine years of age. Patient entered the Massachusetts General Hospital in the service of Dr. James J. Minot in June, 1903. Three months previous she had an attack of typhoid fever, and three weeks after the onset of the disease severe pain developed in the back, relieved only by morphia. This continued for three weeks and then largely disappeared, and the patient was able to be about until five days ago when the pain in the back recurred with such severity that the patient was put to bed. For a week her temperature ranged about 101° and after that gradually fell to normal and remained there during the balance of her stay in the hospital.

At the time of the examination the motions of the lumbar and low dorsal vertebræ were much restricted with marked tenderness over the spinous processes in the region of the upper two or three lumbar vertebræ. All motion of the spine was so painful at this time that it was with difficulty that a thorough examination was made. The heart and lungs were negative; the urine was normal; the hemoglobin was 70%; there were 10,600 whites in the blood count and the widal reaction was positive.

At that time a diagnosis of typhoid spine was made and a plaster of Paris jacket applied to immobilize the spine until the active inflammation subsided. The patient was kept in bed with the jacket on for about a month. During the first part of the use of the jacket the pain continued, the only benefit from the support being the greater ease in moving from side to side. After that the pain gradually disappeared and a leather jacket was substituted for the plaster one. The patient then left the hospital with the understanding that the leather jacket was to be gradually discontinued. The spinal motions at that time were distinctly limited in the region of the inflammation, and undoubtedly much of this will be permanent.

The spinal process represented undoubtedly a definite infection due to the typhoid bacillus with enough inflammatory change and thickening to cause permanent thickening and thus limit the spinal motions. In the simple toxemias which undoubtedly do at times affect the spine the relief from the pain would probably have followed the application of the jacket, while in the case reported with the organism itself probably present, in spite of the fixation, the pain persisted, as is usual in such infections until the temperature disappeared and the evidences of the active life of the organism had passed.

Case XIII. Pauline W., ten years of age, seen in January, 1903, in consultation with Dr. T. M. Rotch, had the following history: Until four years ago the child had been so unusually well as to be considered a model of health by the people of the neighborhood. At that time the child had some trouble with a tooth which was followed by acute disease of the cervical glands. Shortly after this she began to have trouble with the feet so that it was difficult to pull on her boots. With this there was some lameness, and a short time afterward the neck became suddenly sensitive and the head was drawn to the right. Soon after the knees and then the hands and wrists became swollen. All the joints which are now involved or which have been involved became so during the first six months. Under the supposition that the condition was rheumatism the patient was treated with the ordinary rheumatic remedies, was taken to the Hot Springs in Virginia for some time without benefit and under the various forms of anti-rheumatic treatment she ran down in health steadily.

At the time of the examination the tarsal and ankle joints were swollen and boggy but the motion was not much affected; both knees were swollen, and also the wrists with but little restriction of motion; the cervical spine was stiff with very little apparent swelling and the inguinal, axillary and cervical glands were moderately enlarged. The x-rays taken at that time showed no atrophy of the bone or cartilage, the joint swelling being due apparently to the infiltration and relaxation of the membranes. The child was put upon a course of general stimulating tonic treatment, and the father, who is a physician, reported three months later that she was much better and was continuing to follow the same general directions.

This case represents quite typically the disease described by Still, except that it was of a milder type than the cases reported by him. From the most careful study of the disease it suggests an infectious process, the infection most probably having been absorbed from the abscess about the tooth. Unlike the atrophic form of arthritis the disease has not progressed since that time, nor has the swelling of the individual joints subsided and gone on to ultimate atrophy. At present the swelling of the various joints is undoubtedly due to the hyperemia of the mem-

branes and the villous arthritic change which results from this. In case the general stimulating and tonic treatment does not effect a material improvement in the condition, an operation with the idea of removing the villi which represent the mechanical irritation to the joints must be considered.

CASE XIV. Miss E. M. S., a patient of Dr. W. W. Pillsbury, having previously been well and with a good family history, in March, 1903, met with a slight injury to the left knee. This was followed by a synovitis, and shortly afterward pain developed in the joint so that motions were restricted, and gradually during the next four or five months the process extended from joint to joint until at the present time practically all of the joints in the body are affected. In the individual joint there is comparatively little increase in the joint fluid but much infiltration of the membranes and periarticular structures, giving in the exposed joints a marked spindle shaped appearance. All during the developmental stage of the disease there has been a slight increase of temperature, from one to two degrees, and the pulse has been much accelerated, from 120 to 130 most of the time. The glands throughout the body are much enlarged. While at first there was comparatively little abnormal in the character of the blood, a profound anemia has developed.

The case suggests in all its appearances a typical chronic rheumatism, undoubtedly resulting from some organism, the exact nature of which we do not at the present time know. It seems probable that it is in such a case that the organisms which have been recently recognized in cases of rheumatism will be found to represent the causative factor.

CASE XV. Mr. R. W., twenty-one years of age. Four years previous to the time of the examination in July, 1903, the patient had an attack of pneumonia which was followed by an empyemia, for which a radical operation was discussed, but which for some reason was not performed. The convalescence from this condition occupied a long time and in that time pain developed in one hip. Shortly afterward the other hip, both knees, one ankle, shoulder, elbow and jaw became affected. Two years later the patient had scarlet fever, following which all of the symptoms were worse. The condition at first was considered an acute articular rheumatism which has gradually gone on to a chronic condition.

At the time of the examination many of the joints were involved as stated. The spine was stiff, both hips allowed only a slight amount of motion, the knees were flexed with considerable stiffness, the right ankle was swollen and stiff, the jaw was practically ankylosed and the left shoulder could be moved but little. The other joints were practically free. None of the joints showed any changes of atrophy and there had been no progression or extension of the disease since the original trouble began. The patient presents the typical appearance of chronic rheumatism and in the light of similar cases probably represents a toxemia following upon the pneumonia and the empyemia, the organism probably responsible for the infection being the streptococcus. A pneumococcus toxemia does not as a rule last so long, and for the organism to have been present itself would have undoubtedly been followed by suppuration in some of the joints.

The treatment with this patient, as the active disease was over when he was first seen, has consisted of regular manipulation of the joints, tonics to improve the general nutrition, and has been followed by considerable improvement in the function of the affected parts.

CASE XVI. Mr. F. R., twenty-one years of age, having previously been well, two years ago developed suddenly an attack of what was called rheumatism, confined at first to the right knee. The joint was red, hot and considerably swollen. In three months the other knee became involved, then gradually the neck, elbows, feet, hips and shoulders. Each joint behaved in the same way, showing swelling with much sensitiveness which gradually subsided leaving in almost each instance some restriction of motion. At the time of the examination the cervical spine was stiff, the motions in the left shoulder restricted about one half. The left elbow, which had been more seriously affected than the other joints, was completely ankylosed. Both knees were flexed to about 45°; the wrists were stiff, and the fingers of both hands were flexed and distorted (Figs. 1 and 2); the feet were quite flat and the right one stiff at the ankle. The case represented undoubtedly the so-called chronic rheumatism, and at the time of the first examination there was very little evidence of active disease. The glands, however, were still somewhat enlarged; there was practically no elevation of temperature, but the anemia was quite marked.

For treatment the patient has had regular and repeated manipulations of the various joints with the idea of improving their function as much as possible. He is, at the present time, able to walk about with his legs straight; the hands are used more perfectly, and in all the joints there has been some improvement. The degree of helplessness as the result of treatment has been materially lessened.

CASE XVII. Mrs. B., thirty-five years of age. Two years previous to the time of her first being seen the patient had a severe attack of what was called articular rheumatism, many of the joints being swollen and acutely painful, the right hip being especially involved. The symptoms of acute suffering lasted for several weeks, during which period the patient was kept upon her back, the leg raised and supported upon pillows with considerable adduction. This position was maintained throughout the period of active inflammation, and after the acute symptoms had passed and the patient began to get about it was found that the right hip was dislocated, the dislocation having undoubtedly resulted from the distension of the joint during the inflammation together with the position of flexion and adduction which would make dislocation easy.

There was at the time of the examination no apparent destruction of bone, and accordingly the leg was manipulated under ether, and with comparatively little difficulty the head of the femur put back into place. The position was maintained with fixed dressing for a few weeks, after which motion and weight bearing were allowed. The bones remained in the proper position and the function of the part improved so that except for some limitation of motion in the extremes there was little to show for the previous condition.

This case illustrates a result which may follow a comparatively simple inflammatory process unless the position of the part is carefully considered.

CASE XVIII. Mr. A. O., a young man twenty-two years of age, was seen in July, 1903, in consultation with Dr. J. J. Whoriskey. Having previously been well, he developed following the wearing of an imperfectly fitted shoe a blister upon the heel, which was

followed by a small pustule at that point. Twenty-four hours later symptoms of acute infection developed, with high temperature, rapid pulse and glandular enlargement. The pustule was promptly opened with temporary relief, but one parotid gland became infected and went on to suppuration. One or two other points of infection developed, and finally a few weeks after the first onset of the disease the left hip became acutely sensitive. From the beginning of the infection the patient was very seriously ill, and with the development of the symptoms in the hip the condition was so grave that a rapid incision was made into the joint for drainage as an operation of last resort. The hip joint was filled with pus, as had been all the other parts in which the infection had manifested itself. Under gradual, stimulating tonic treatment, with protection of the joint, and with such treatment as would tend to lessen the suppuration in these parts, the patient gradually recovered with a moderate restoration of function in the affected part.

The case represents an infectious process starting in the subcutaneous tissue, followed by joint suppuration, the specific organism not being determined as the culture was lost. In such a case, it is, of course, impossible to expect normal recovery because of the amount of destruction of tissue which has taken place.

SOME POINTS ON THE DIAGNOSIS AND TREATMENT OF CERTAIN NEGLECTED MINOR SURGICAL LESIONS.[1]

BY E. A. CODMAN, M.D., BOSTON.

THE subject on which I have chosen to speak to you is not remarkable for its brilliancy, as you may guess by the title. I think that we may justly criticise ourselves as surgeons, for our tendency to pay too much attention to the cases on which we may obtain brilliant and striking results, rather than to endeavor to do our best for every surgical case which is presented to us. In the cases which I shall describe, as a rule, the results are not very good and even when intelligently treated, the patients are apt to think that doctor so and so made some error because the limb is not more useful. The material which I have used for this paper I have obtained mainly from my service in the Surgical Out-Patient Department of the Massachusetts General Hospital. In my work there, the cases in which I am not able to make a satisfactory diagnosis are always more interesting to me than those in which the diagnosis is clear and the treatment sharply indicated.

Among the lesions which have been most troublesome, are certain unrecognized fractures which we have only lately learned to distinguish from sprains. It used to be said that a sprain was worse than a break, but from my experience of the last four or five years, I feel quite certain that the majority of sprains which do not promptly recover are in reality breaks. Among the most common of these unrecognized fractures is that of the scaphoid bone of the wrist. The history of the following case is quite typical:

H. S. F., aged twenty, injured his wrist in playing football at Cambridge. He was seen by the surgeon of the football squad and the wrist was put in splints for several days. The swelling and tenderness subsided to a certain extent. No crepitus was obtained, no ecchymosis, and the patient could use his fingers and wrist a certain amount. There was no abnormal mobility. In football practice it is found that a sprain does better if the use of the limb is kept up, and this wrist was treated on this principle. While there was some improvement, the joint still remained sore, forced motions beyond a slight angle were very painful and the gain in strength was slow. About six weeks after the original injury the patient consulted me at my office. I made a diagnosis of fracture of the scaphoid and confirmed it by an x-ray. Feeling that it was too late to endeavor to obtain union between the fractured ends of the bone, I only kept the wrist on splints for about two weeks and then had it massaged. The rest on the splints improved the joint to a considerable extent but it still remained somewhat swollen and gave pain if extreme motions were forced. The young man was prevented from doing any sort of athletics with the wrist, he could not play football, and frequently found that he hurt it in scrapping with the other fellows. This condition has lasted over two years with a very gradual gain, so that even now the wrist cannot be extended beyond an angle of 25° without giving extreme pain; flexion is less painful, but in the extreme position almost as bad as in extension. There is marked tenderness over the scaphoid bone which is best obtained by adducting the wrist and pressing with the thumb just in front of the styloid process of the radius in the anatomical muff box.

This history is typical of fracture of the scaphoid and while at first I found the x-ray a necessity in making the diagnosis of this fracture, I can now in a large proportion of cases diagnose it from the clinical side alone. With the assistance of Dr. H. M. Chase, I have collected about 15 cases which have been at the Massachusetts General Hospital and obtained their detailed histories. We hope to publish these cases soon. In addition to these there are perhaps twenty-five more of whom we have x-ray plates, but whose clinical histories we have not been able to obtain.

Prof. Dwight has offered the suggestion that these fractures are perhaps due to a congenital condition of the scaphoid bone which is characterized by the forming of two centers of ossification instead of one, so that a lamina of cartilage is left between the two halves of the bone and that it is through this weakened area that the fracture takes place. Be this as it may, fracture does take place and in my opinion the assumption that such a weakened portion of the bone exists is entirely a theoretical one. To sum up the diagnosis of fracture of the scaphoid: There is no deformity, no ecchymosis, no crepitus, no abnormal mobility — in other words the classical signs of fracture are absent. What we do have is localized swelling and tenderness in the region of the scaphoid bone, *i. e.*, in the radial half of the wrist joint; limitation of active joint motion and sharp pain called forth by efforts at

[1] This paper was prepared to be read at a meeting of the Worcester District Medical Society on March 9, 1904. A number of anatomical preparations on the bursæ about the wrist, shoulder and ankle were demonstrated, and lantern slides illustrating this paper were shown. Owing to lack of time, the formal reading of the paper was omitted.

forced passive motion. The joint protects itself from such efforts at forced flexion or extension by muscular spasm, which is particularly evident in extension. The diagnosis should be confirmed by the x-ray, the best position in which to take the x-ray being an antero-posterior view in adduction. As I have said the above history is very characteristic of this fracture and the reason for the continued impairment of the wrist is that the bone being in such delicate relation with the other bones any deformity of it prevents the other bones from going through their normal arcs of motion.

In most of the cases as shown by the x-ray, union does not take place and in those in which it does take place, the bony callous is so large as to destroy the accurate contour of the bone, which is necessary to secure a perfect mechanical action of the joint. In some cases, though, the displacement of the fragments has been very little and a union has at length taken place. These cases are as a rule, more comfortable than those in which union has not taken place or a large callous has formed. The treatment indicated, therefore, would be to prevent motion of the joint while there is still a hope of the fragments uniting. In other words, if we treat the case as a sprain and continue active and passive movements of the joint, the union will be prevented; we must, therefore, keep the joint in a fixed position for at least three weeks in order to obtain union. It is impossible for me to tell just how long such fractures should be kept fixed, but I am inclined to think that three weeks is a fair amount. If this has not been done immediately after the injury, I doubt if union can be obtained for the fracture is on both sides open into the wrist joint, the inter-space is filled with synovial fluid, and the adjoining synovial membrane, I am inclined to think, spreads over the raw edges of the bone and a false joint is formed.

As to the treatment of the condition when union has not taken place and a considerable period of time has elapsed, although I have never done it, I should advise excision of the proximal half of the bone. In two cases of compound dislocation of the wrist where this bone was also broken, one-half of it was excised, in one case by one of the house officers, in the other by Dr. Greenough. Both these cases have now fairly good wrists in spite of the great severity of the original lesion. I am inclined to think that if the proximal half of this bone were absent, the permanent condition of the wrist would be better than if the bone remained un-united, in which case one half of the bone constitutes practically a foreign body. I should, of course, not advise this operation unless the condition of the wrist was so troublesome as to interfere with the occupation of the individual.

Another injury of the wrist which should be spoken of in this connection is dislocation of the semilunar bone. This often occurs with fracture of the scaphoid, although in two cases I have seen it the only lesion. One of these I was able to reduce by manipulation without open incision. In the other case I was obliged to make an anterior incision and with the aid of a tenaculum easily reduced the bone. The result in both the cases has been very nearly perfect.

The method of reduction of the semilunar bone is to forcibly extend the wrist; an assistant then makes pressure with his two thumbs over the flexor tendons of the wrist on the semilunar bone, while the surgeon with the assistant's thumbs still in position, flexes the wrist completely. The os magnum slips over the posterior horn of the semilunar and the latter pops into its position on the radius.

Another lesion which must be considered in the diagnosis of fracture of the scaphoid, is early tuberculosis of the wrist joint. This condition is sometimes found confined to the region of the scaphoid so that the swelling, tenderness and spasm, closely resemble the condition in fracture. In the diagnosis, the absence of history of injury, the slow onset, the extreme grade of spasm of the muscles and local temperature, are important aids. The x-ray by showing the focus of bone destruction from the disease is the decisive test. By the kindness of Dr. J. G. Mumford I am able to show you an x-ray of such a case in which the focus was successfully excised.

Rheumatoid and osteoid arthritis may also be confusing although in both, other joints are apt to be implicated in the disease. The former is characterized in the x-ray by the absorption of cartilage so that the bones approach each other very closely. The latter shows the characteristic enlargement of the articular margins typical of osteoid arthritis.

I have never known syphilis to affect the wrist joint except in one case of Charcot's disease. In this case the great mobility and anesthesia characteristic of a Charcot's joint left little doubt of the diagnosis, although the deformity was characteristic of a Colles fracture.

Another lesion in this region which should be considered, is teno-synovitis of the tendons of the thumb and long extensors of the wrist. You may or may not recall from your study of anatomy that the bursæ surrounding the tendons of the extensor ossis metacarpi pollicis and extensor primi internodii pollicis communicate with one another and that the bursæ of the extensor secundi internodii pollicis and those of the extensor carpi radialis longior and brevior have a common sheath. Teno-synovitis of these bursæ is very common and is characterized by the anatomical location of the swelling and the well known tendon crepitus. These bursæ overlie the scaphoid bone and swelling and inflammation of them is quite confusing.

Another point which is not generally known (and I have never seen it mentioned in the books) is that in fracture of the lower end of the radius, as in Colles' fracture, and the various fissures which occur through the lower end of the radius, bleeding is apt to take place into the common bursa of the radial extensors. When I see this bursa enlarged and fluctuant after an injury to the wrist, I feel almost certain that a fracture of

the lower end of the radius exists even if no displacement of the bone is seen and no other deformity is present. This is generally borne out by the x-ray.

Another region which is interesting from an anatomical standpoint in diagnosis is the shoulder joint. No surgeon can practice long without seeing certain puzzling cases of lesions in this region which defy his diagnosis and treatment. Unrecognized fractures are not uncommon in this vicinity, especially in the greater and lesser tuberosities. Cases which show neither crepitus, abnormal mobility nor deformity may prove to be fractures of the facets of insertion of the short rotators of the humerus. The x-ray is particularly useful in indicating fractures of the greater tuberosities which appear like laminæ torn from the head of the bone. Unfortunately the fracture of the lesser tuberosity is apt to oe unrecognized in the x-ray because the facets pulled off by the subscapularis fall in the shadow of the rest of the oone. The same is true of the supra and infra-spinatus. Some weeks after the injury the fossæ of the supra and infra-spinatus show great atrophy, due to the inability of these muscles to perform their functions. This may occur in other conditions, however. The importance in treatment of recognizing these lesions early, is so that the shoulder can be immooilized for a continued period in order to allow the facets of bone torn away by the muscles to form new attachments. As in the wrist, if motion is allowed, it is unlikely that we will get union. I am sorry to say that it is unlikely even with treatment, and such cases usually fall into the class which we call peri-arthritis for want of a better term.

We all know how often the shoulder remains crippled for life and the patient complains that he is unable to get his hand to the back of his head. This term, peri-arthritis, is a sort of surgical waste basket in which we throw our diagnostic failures. We manage to keep our self-respect by telling the patient that rheumatism has set in or that he has a gouty joint, but I believe that such lesions, when we know more about them, will be separated into more distinct anatomical entities. In the diagnosis of such lesions we must not forget a simple impacted fracture of the shoulder joint. It is extraordinary how little displacement such fractures present.

We are apt to depend in our diagnosis of fracture on the presence of abnormal mobility, crepitus or deformity. Personally, I think that local tenderness and ecchymosis are of as great importance. The more I see of fractures about the shoulder joint, ankle joint or wrist, the oftener do I find that where ecchymosis is present, there is bleeding from a broken bone. In speaking of ecchymosis, I refer to the discoloration which takes place in adjoining parts which were not directly subjected to the forces causing the injury. In the instances of fractures about the shoulder joint the bleeding may travel under the fascia and appear on the inner and posterior surfaces of the arm just above the elbow. In the ankle such hemorrhages appear just above the sole on either the outer or inner side of the oscalsis. When ecchymosis is present in these situations, I seldom fail to find fracture of some bone, and if I do fail to find it, I regard it as more than likely to be present in spite of my efforts. As in the neighborhood of the wrist joint, so in the shoulder joint, we may confuse fracture with teno-synovitis of the bursæ.

About the shoulder we find numerous bursæ, the most constant of which are: the deltoid or subacromial lying just under the fibers of the deltoid muscle and extending between the acromion process and the capsule of the joint; the trapezoid, lying over the little triangular area at the posterior end of the spine of the scapula; and the coracoid, lying under the tip of the coracoid process and between the tendons of the coraco-brachialis and the supscapularis. The diagnosis of inflammation of these bursæ is not difficult if their anatomical situation is borne in mind. In raising the arm over the head, the first third of the motion may be accomplished by the rolling of the head of the humerus on the glenoid cavity but to move beyond this if the scapula be fixed, the great tuberosity and the capsule of the joint must also roll under the acromion process. This would bring into play the two surfaces of the acromial bursa which, if inflamed, gives great pain and causes the muscles about the joint to fix the humerus at this point, and the remaining arc of motion is carried by the movements of the scapula on the thorax. Hence to make a diagnosis of deltoid bursitis, the scapula should be held by an assistant and the arm moved upwards by the examiner. Somewhat less than one third of the motion can be made without causing pain, but effort beyond this will cause great pain referred to the region of the acromion process. Often there is tenderness at a joint just below the tip of the acromion extending backward and forward along the edge of the process. Where the bursa is filled with serous effusion the contour of the shoulder may be rounder than on the other side. Inflammation of the coracoid bursa is characterized by local tenderness just below the tip of the coracoid process and pain on muscular efforts which call into play the coraco-brachialis; for instance, if the patient with extended arms tries to press his palms together in front of his chest. I have sevefal times seen this lesion in truck drivers who had pulling horses. The trapezoid bursa is particularly apt to be inflamed where for some reason there is fixation of the shoulder joint from disease or injury. In this case the scapula is obliged to take part in all the motions of the arm, and the bursa between the trapezoid and posterior edge of the scapula does more than its normal share of work. There is not infrequently a crackling fremitus when the two surfaces of these bursæ roll over one another. This crackling we are all familiar with in the pretapella bursa, although I find that most surgeons imagine that this crackling is inside the joint.

The treatment of these bursæ is the same as in inflamed serous cavities in other portions of the body, *i. e.*, mechanical rest and counter-irritation. The form of work which has produced the inflammation must be stopped, and the motions of the joint which call the bursæ into play must be restricted. A very effective form of treatment of the mild cases of the shoulder joint I have found to be the simple pinning of the coat sleeve to the coat. This allows a certain amount of rotation in the joint cavity, the free use of the forearm, but restricts the motions of the upper arm. As a counter-irritant, it has seemed to me that I have often seen benefit from using a light stroke of the actual cautery. Some of my colleagues are very enthusiastic about the high frequency electric current. It certainly is helpful in ruling out neurasthenics and malingerers.

Another region of the body which is interesting in the diagnosis of obscure lesions is the ankle joint. We have learned lately to detect fractures in this region too, in which the old signs failed, and which used to be called sprains. One of these, which is not at all uncommon, is impacted fracture of the oscalsis.

The salient points for diagnosis in this lesion are: (1) The history of a fall on the feet or heels. (2) Tenderness over the oscalsis. (3) Ecchymosis just above the sole on both sides of the foot. (4) Shortening of the distances between the malleoli and the floor as compared to the other foot. (5) No crepitus, abnormal mobility or obvious deformity. This fracture is very common, particularly in working-men, and the ultimate result sometimes leads to considerable incapacity. The direct result is flat foot, the impairment of the motion of the joint through formation of bony callous and the alteration of the lines of weight bearing on the bony and ligamentous structure of the foot. I have never seen one of these cases as a late result, who did not complain of some soreness in his foot on unusual exertions, such as extreme flexion of the ankle, walking on rough ground, long standing, etc. The treatment in these cases should be directed to preventing the patient from walking on his feet before bony union has taken place. This has the double result of preventing a further impaction of the bone causing shortening of the distance of the malleoli from the floor and of lessening the degree of permanent callous, which in any fracture is greater if it is continually disturbed while healing. When the acute symptoms have subsided, and the patient commences to walk, he should wear a flat foot plate to prevent increasing pronation of the foot.

Perhaps the commonest fracture about the ankle which is overlooked, is oblique fissure of the external malleolus. In this, also, we fail to find crepitus, abnormal mobility and deformity, we rely for our diagnosis on local tenderness, ecchymosis and the x-ray. This fracture is the badly sprained ankle, which we used to see before the x-ray. The line of fracture takes place just above and through the external malleolus from behind, forwards, downwards and inwards. What little displacement there is, is a tilting or rotation of the lower fragment which produces a slight irregularity on the posterior surface of the fibula at the point where the upper edge of the lower fragment is located; tenderness at this point is usually acute, and by careful palpation, the tenderness will be found to follow the line of the fracture downwards and forwards. The ecchymosis takes the form of a bloody sac which falls over the tip of the external malleolus and spreads along the outer side of the foot. The ecchymosis has almost a characteristic shape, so that I am inclined to think it is due to the filling with blood of the peroneal bursa which lies just behind the external melleolus. As in the radial bursa the base is directly on the bone and must be torn by a fracture.

At first I was always in doubt about these cases and relied wholly on the x-ray to detect them, but now-a-days I am able to recognize them at a glance, and while I always have the x-ray taken, I am seldom mistaken in the character and position of the lesion from my "snap diagnosis." This fracture should be treated as a fracture, not as a sprain. As in the other forms which I have spoken of, the rule that callous increases if the fracture is continually moved, is true in these cases too, and patients who have had this insignificant fracture, and have been treated for sprain in the ankle, will often tell you that it is of considerable annoyance when it has been used more than a moderate amount, even years after the injury.

There are in the ankle other fractures which the x-ray has taught us to recognize which are important from a point of view of prognosis and treatment and which I should be glad to dwell on at length, if time permitted. Among these I may mention the fracture of the posterior facets of the astragalus, of the facets of insertion of the lateral ligaments of the ankle joint, etc.

In making these fragmentary remarks I have confined myself to the wrist, shoulder and ankle; but let me say that the same general principles apply to the other joints too. You will be astonished to find how often the presence of ecchymosis and accurately localized tenderness are proofs of fracture where no crepitus, deformity or abnormal mobility can be obtained. You will also be astonished to find how a little brushing up of your knowledge of the anatomy of the bursæ will help you in your clinical diagnoses. "House-maid's knee" and "weavers' bottom" are not the only ones.

RADICAL CURE OF INGUINAL HERNIA.

BY JOHN O'CONOR, M.A., M.D.,
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I WISH to invite the attention of my American colleagues to a method which I have recently practiced in 50 cases with very satisfactory results.

A four-inch incision is made over the line of the inguinal canal. The sac is thoroughly isolated from cord, opened, and its interior carefully in-

spected, and palpated right into abdomen. Any intestinal or omental adhesions which may be present are separated and occasionally it is necessary to excise some omentum before the contents of sac can be returned into abdominal cavity.

An assistant next draws the sac downwards by a forceps applied to its distal extremity and retaining my left index finger within sac nigh to internal ring in order to prevent intestine or omentum getting caught, I transfix and ligate sac with fine silk, then divide it about half an inch below ligature; the stump recedes into abdomen, and the distal portion is removed.

The conjoined tendon and Gimbernat's ligament are next differentiated from surrounding structures, and with left index finger introduced into canal as a guide four "strong" fishing gut sutures are passed from within outwards by means of a full curved hernia needle, about one-third of an inch apart, through the projecting ledge of Gimbernat and external oblique, the ends of sutures are retained outside external oblique and the needle withdrawn.

The free ends are next threaded on a hernia needle with an opposite curve and are carried upwards from within outwards into substance of, and through conjoined tendon. The ends of these sutures are similarly retained outside sheath of tendon, and the needle withdrawn.

A straight Reverdin needle, or sinus forceps, is next entered through each suture hole in tendon, passed across just beneath aponeurosis and made to emerge at corresponding suture hole in external oblique, the end of this part of suture is caught in needle or forceps, drawn across and out through suture hole in conjoined tendon, thus both ends of each suture emerge from the same aperture in tendon, and form a most efficient submuscular stitch, excepting the fourth or lowest suture which is only partially submuscular in that it crosses in front of external ring. These sutures are tied with sufficient force so as to approximate the tendon and Gimbernat, care being taken on adjustment of lower suture so as not to unduly compress the cord. I generally allow enough room for the insertion of my little finger.

The ends of sutures are snipped off and the knots retreat into substance of tendon and each little stitch aperture in sheath of latter is closed by a fine catgut suture.

The operation which takes from ten to fifteen minutes to perform is concluded by uniting the skin wound with a continuous blanket suture.

The advantages which I claim for this method are, (*a*) its simplicity; (*b*) the two strongest and most suitable structures in the inguinal region for effective barrier formation are utilized; (*c*) there being no interference with the position or structure of cord, orchitis, with subsequent atrophy of the testis, does not supervene; (*d*) there is no splitting up of structures which experience shows are never anatomically replaced, not to mention the fact that all cicatricial barriers tend to weaken in time.

To any surgeon wishing to put this method to the test might I suggest, to perform it on a cadaver and then make an inspection from inside abdomen.

In conclusion I wish to mention that full use must be made of the left index finger introduced into inguinal canal during the application of the sutures, which not only protects the structure of cord, but differentiates the projecting ledge of Gimbernat, and so obviates the danger of injuring the external iliac vessels.

In my 50 cases no accident occurred, no orchitis supervened, and only in one instance did sepsis take place, which promptly ceased on opening up lower angle of wound. The silkworm gut sutures being buried in the substance of conjoined tendon, and covered over by sheath, are practically out of the range of contamination.

Iodoform gauze dressing is applied, the skin suture is removed on seventh day and the patient allowed out of bed on the fourteenth day.

Clinical Department.

A CASE OF OVARIAN TUMOR WITH TWISTED PEDICLE. THREE REDUCTIONS WITHOUT OPERATION. OPERATION; RECOVERY.

BY CHARLES ALLEN PORTER, M.D., BOSTON,

Assistant Visiting Surgeon to the Massachusetts General Hospital,

AND WILLIAM CARTER QUINBY, M.D., BOSTON.

WITH Dr. Herman Baldwin, of Chestnut Hill, on Jan. 11, 1904, the following case of ovarian tumor, with twisted pedicle, was seen, which, owing to a definite history of reduction by manipulation, previous to operation, is of sufficient interest to report.

A. P., age thirty-five, had a healthy child in May, 1900. A year ago, she complained of bearing-down sensations in the pelvis, and discomfort in this region on lifting the baby, and on pushing the baby carriage uphill. She had gynecological treatment by tampons, but was not informed of the condition found. Her last treatment was in October, 1902. Since then, she has been well, except for occasional pains in the back, until her present illness.

On Dec. 22, 1903, after eating some bad steak, she was taken sick in the night, and vomited violently all day. On Dec. 23, after an especially severe attack of vomiting, she was seized with a sudden, sharp pain in the right iliac region. She states that she saw and felt a lump there, the size of a small orange, which after massage and manipulation, disappeared. The pain ceased immediately. She vomited daily in the morning, but was up and about, and free from pain until Jan. 5. On this day, after carrying the baby upstairs, she had another attack of severe pain, similar to that on Dec. 23. On Jan. 4, the catamenia began, with more flowing than usual, and severe backache.

On the morning of Jan. 5, she was found crying and groaning, evidently in great pain. Temperature was normal, pulse 68, abdomen lax, not distended, tender in the right iliac region, but without muscular spasm. Examination was unsatisfactory, owing to the patient's rather hysterical condition. At the end of an hour, the pain suddenly ceased, the patient said that she was well, refused further examination, and wished to get up. Occasional vomiting was still present. Bowels

moved normally, no distention, no fever. Although at work, she did not feel well.

On Jan. 11, in the morning, she had another sudden attack of pain, similar to the other two. Flowing was still present, although usually it lasted only three days. Temperature 97.8, pulse 66, vomiting about every fifteen minutes, with continuous pain. At four in the afternoon, after another attempt at palpation of the abdomen, the pain suddenly disappeared.

When seen with Dr. Baldwin on the afternoon of Jan. 11, about five o'clock, she had no fever, pulse was 72, and she was apparently free from pain. There was no distention. The abdomen was soft, with considerable fat between the umbilicus and pubis. No tenderness in the epigastrium. She did not appear sick. On careful examination, a globular tumor could be felt in the hypogastrium, which slipped readily from side to side. The tumor was about the size of a large grape fruit, irregular in contour, elastic, not tender to pressure. It could be pushed to the left for several inches, when further pressure caused a sensation of tension and pain in the right iliac fossa. It could also be pushed upward, so that it occupied the right hypochondriac region. Attempts to push it further were again resisted by an apparent attachment in the right iliac fossa, and caused pain and tenderness in that region. When the tumor was pushed into the right iliac fossa, no pain was caused. On making deep pressure on the inner side of the right pelvic brim, there was slight tenderness. On coughing, there was no evidence of a hernia in either the femoral or inguinal canals. The right kidney was not palpable, and the tumor could not be pushed below the ribs. No blood count was made, nor was a vaginal examination proposed, owing to the flowing.

In view of the vomiting, apparently of a reflex nature, the absence of constipation or distention, and the presence of a tumor, movable to a certain degree, as if attached on the right iliac fossa; also in view of the absence of fever, tenderness or spasm suggesting appendicitis, the diagnosis of an ovarian cyst, the pedicle of which had become twisted, causing these three attacks of pain, seemed assured. That in one instance, the abdominal manipulation had righted the twist, did not seem improbable, in a tumor of such marked motility. The other two reductions were apparently more spontaneous. The tenderness at the point of origin of the pedicle, which was most probably the right broad ligament, appeared to indicate where the twist had occurred, and that here thrombosed vessels might be found. In view of the ease with which reduction had occurred, with relief of all symptoms, except slight tenderness and vomiting, it seemed as if the cyst could not have twisted more than once or twice. Immediate operation was advised, on the grounds that the tumor might be infarcted, or further twisted at any time, with consequent gangrene, that nothing could be gained by delay, and that if thrombosis occurred, it might become progapated to the vena cava, or to the internal iliac vein.

Operation was done on the morning of Jan. 12, 1904. The previous night had been fairly comfortable. She vomited once, but in the morning felt well enough to walk upstairs, and was free from pain, though the abdomen was somewhat tender. For the first time, she had a temperature of 100 F°.

On opening the abdomen, just inside of the right rectus, the intestines were found collapsed, and an infarcted ovarian cyst at once presented, in a moderate amount of fluid, containing a few fibrin flakes. The tumor was dark purplish, tense and shiny. It was seen to spring from the right broad ligament, the tube being continued over it. The twist had occurred immediately after the tube and ovary left the uterus. The round ligament was slightly involved in the rotation. The tube had also been twisted, and was of a deep violet color. It was found that the tumor was rotated one and three-quarters times on its axis, the rotation being towards the median line. The ovarian vein was ligated, and the tube and ovary removed, cutting the narrow pedicle close to the uterus. The ovarian veins, and those in the broad ligament were found thrombosed, at the site of the twist.

On examining further, a similar tumor, about as large as a medium-sized orange, was found to involve the left ovary. This tumor was the color of an ovarian dermoid, and was not infarcted. The tube was not enlarged. It was decided, owing to the age of the woman to leave a small amount of ovarian tissue, which was dissected off from the base of the ovary. No ligatures were used, but the few bleeding points were controlled by a continuous chromic catgut suture. The uterus was small, and in normal position.

Recovery from the operation was entirely satisfactory, and the patient made an uninterrupted convalescence. Had a vaginal examination been possible, the left ovarian tumor, which lay beneath the one with the twisted pedicle, could easily have been discovered. Of especial interest in this case are the repeated reductions of the torsion, which, together with the physical examination, gave a perfectly definite clinical picture, on which to base the diagnosis.

Pathological Report of Specimens sent to Dr. W. F. Whitney, consisting of a cystic tumor of each ovary:

First, a tumor the size of an orange, with a thin wall; the sac containing sebaceous material and hair, and the inner surface lined with a cutaneous membrane.

Second, a cystic tumor, the size of a grape fruit, of a dark blue color, with evident infiltration of the walls with blood. On section, it was found to be chiefly composed of a single cyst, with papillary projections from one side.

Diagnosis: Simple dermoid cyst of one ovary, and papillary cysto-adenoma, with infarction of the other.

Medical Progress.

PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

MANAGEMENT AND CONTROL OF INFECTIOUS DISEASES.

TUBERCULOSIS IN ENGLAND.

NEWSHOLME[1] notes the following as the measures which are at present contributing to the extinction of tuberculosis in England,

A. Means of ascertaining the existence of the disease.
   (1) Bacteriological diagnosis.
   (2) Notification of cases, voluntary or obligatory.

B. Direct preventive measures.
   (1) Law against expectoration in public places.

[1] Journal of Hygiene. Vol. iii, No. 4, 1903.

(2) Disinfection and cleanliness.
(3) Sanatoria.
(4) General Sanitary Improvement.

C. Education of the public and of patients in the importance of the foregoing measures.

The author also discusses the relation of the food-supply to the prevalence of tuberculosis, and shows that while the price of wheat diminished from 775 pence per quarter in the five years (1838–42) to 343 pence in the five years (1896–1900), the death-rate from phthisis declined from 3,880 per million to 1,321 per million in the same time.

ORIGIN OF PULMONARY TUBERCULOSIS.

Behring[2] insists upon the identity of human and bovine tubercle bacilli, and urges that the chief source of pulmonary tuberculosis occurring at any time during life is from infection through the milk taken in infancy, whether the tubercle bacilli in the milk are of human or bovine origin. The presence of a coughing consumptive in a family often results in the infection of the infants by inhaling the germs, or by their getting into the milk, or upon the vessels used. This is the secret of the so-called heredity and predisposition to tuberculosis in the members of a family. The infection is post-genital, not inherited. It may remain latent for years or for life, but under predisposing conditions it may develop into pulmonary tuberculosis which is thus traced to infection in infancy.

TUBERCULOSIS IN PRISONS.

Schaefer, of Munich,[3] found in a Bavarian prison that 13% of the prisoners admitted were suffering from tuberculosis. Almost half of the prisoners were also suffering from some form of tuberculosis. Schaefer lays special stress on the food as a vehicle for the transference of the bacilli into the body. He found cultivable tubercle bacilli in the cooking dishes, even after the dishes had been washed. He recommended the isolation of the sick from the healthy, the provision of country colonies for tuberculous prisoners, together with absolute cleanliness.

Theodor, commenting upon the same topic, states: (1) that prisons favor a rapid form of phthisis. (2) The tendency to spontaneous cure found outside is not noticed in prisons. (3) They favor in a high degree the continuance of epidemics of tuberculosis.

INFECTION BY THE BREATH.

Koeniger[4] refers to the projection of bacilli from the mouth while in the act of speaking, such bacilli having been placed in a fluid with which the mouth had been washed. The higher the note uttered the more bacilli were found in the air of the room used for the experiment. No bacilli were found in the air of the room, one hour after speaking.

[2] Deutsche Med. Wochenschrift, 29, No. 39.
[3] Vierteljahrs, f. off. Ges. Supplement, 1902.
[4] Deutsche Vierteljahrs. f. off. Gesundheitspflegen Supplement, 1902.

ADVANTAGES OF TREATMENT IN SANATORIA.

Parkes[5] enumerates the advantages of sanatoria treatment for consumptives as follows:

(1) The public health would benefit by the withdrawal from among the general population of active foci of disease. A reduction in the prevalence of consumption would ensue when the system is thoroughly established.

(2) The sanatorium treatment made available for sufferers in the early stages of the disease would restore to health and activity a certain proportion of those who under present circumstances succumb.

(3) In the event of a patient being discharged relieved, but uncured, or in the event of a recurrence of the disease after discharge, the precautionary habits acquired by the patient whilst under treatment would largely tend to prevent during his illness the diffusion of infection which would otherwise occur in his own home and place of occupation.

THE SOURCE OF INFECTION IN TUBERCULOSIS.

In a paper upon this subject presented by Dr. S. Davies[6] of Woolwich, England, at a meeting of the Society of Medical Officers of Health, much stress was laid both by the author and by those who took part in the discussion, upon the excessive prevalence of tuberculosis among drunkards, and the probability that infection among them often occurred in consequence of the exceedingly filthy condition of the floors of public-houses or saloons which they frequented, where spitting upon the floor was a very common practice.

PROPHECIES RELATIVE TO THE EXTINCTION OF TUBERCULOSIS.

Dr. Hillier[7] in a paper entitled "The Probable Extinction of Tuberculosis," predicts its extinction in England and Prussia, within "about a generation," and shows, by means of a chart, the rate of decrease in each country.

Dr. Newsholme[8] also in a paper entitled "Public Health Authorities in Relation to the Struggle Against Tuberculosis in England," says, "There is, I believe, more hope of the almost complete extermination of tuberculosis than of any of the acute infectious diseases, with the possible exception of typhus and smallpox."

Again Professor Von Behring[9] expresses "his firm hope and belief that all hospitals and homes or shelters for consumptive patients will become unnecessary in future through the same means which Jenner used to render smallpox hospitals superfluous in the past."

At the present rate of decrease in the mortality from phthisis it does not seem at all improbable that in the next half century, the many sanatoria now peopled with consumptives may be needed for a different class of sufferers, possibly those who are suffering with cancer, since cancer

[5] Public Health, December, 1903, p. 149.
[6] Public Health, December, 1903, p. 130.
[7] Public Health, London, March, 1903.
[8] Journal of Hygiene, Vol. iii, No. 4, October, 1903.
[9] Report of Seventy-fifth Annual Meeting of Philosophers and Biologists at Cassel, 1903.

appears to be steadily increasing, while phthisis is tending towards extinction.

These facts, however, should only be the incentive to greater exertions to hasten the eradication of a disease which has produced and is still producing a large share of the general death-rate of the population.

After the crusaders had returned from the East in the twelfth and thirteenth centuries, there was scarcely a town in continental Europe in which leprosy did not exist, but great numbers of lazarettos were established in which the sick were isolated, and now the disease is almost unknown in Europe, except in Norway.

EBERTH'S BACILLUS IN THE BLOOD IN TYPHOID FEVER.

Courmont and Lesieur [11] demonstrated the presence of Eberth's bacillus in the blood in 37 cases, in all of which the attacks were of moderate severity, from the first few days up to the end of the third week.

OYSTERS AND TYPHOID FEVER.

In an examination of the population of the English district of Southend-on-Sea, Nash [12] found in a population of 33,000 that 250 were regular shellfish-eaters all the year round, this number increasing in the oyster season to 1,500. Among the shellfish-eating portion the typhoid attack-rate was 51.25 per 1,000, and in the non-shellfish-eating portion it was only 0.75 per 1,000. Among employees of shellfish dealers the percentage of attack was 160 per 1,000.

THE BACTERIOLOGY OF BANK-NOTES.

On account of the liberal use of bank-notes of small denominations in Greece, Cumulis [13] submitted bank-notes to experiment, and came to the following conclusions: (1) When the cholera spirillum was scattered upon a dirty bank-note and exposed to dry air, the spirillum died in fifteen to twenty minutes. (2) On a clean note, covered with glass, but exposed to daylight, it lived forty minutes. (3) On a note placed in an envelope the life of the spirillum may be prolonged to sixty minutes, but not more. Koch and Kitasato found that the cholera spirillum lived as long as three hours when dried in air. Cumulis explains this by the fact that their experiments were made on glass and not on paper, and in air moister than that of Greece.

FLIES, TYPHOID FEVER AND SUMMER DIARRHEA.

Martin [14] says: "Each succeeding year confirms my observation of 1898 that the annual epidemic of diarrhea and of typhoid is connected with the appearance of the common house-fly, which becomes very numerous at the beginning of July, and breeds chiefly in privy-middens. The increase and decrease of the annual diarrhea and typhoid epidemic can be foretold with a great degree of accuracy, an increase in the diarrhea cases occurring in a week, and typhoid notifications in three or four weeks after an increase in the number of flies is observed. The annual epidemics of these two diseases begin and end with the appearance and disappearance of the domestic fly."

HOSPITAL ISOLATION OF SCARLET FEVER PATIENTS.

The practice of isolating patients ill with scarlet fever in hospitals designed for this purpose, having been vigorously attacked by three British medical officers, Drs. Marriott, Millard and Fraser,[15] the subject was discussed by the Society of Medical Officers of Health, and the following resolution was adopted by the Society, at the suggestion of Dr. Fraser:

"That in the interests of public health, and in view of the large sums expended annually upon the hospital isolation of scarlet fever, it is, in the opinion of the branch, advisable that a full and searching inquiry into the whole system be held."

The general opinion of the sanitary officials who participated in the discussion was in favor of such hospitals, and opposed to the statements of Dr. Fraser. In Portsmouth, to which most of Dr. Fraser's statements had reference, about 60% of all reported cases are isolated.

The editor of *Public Health* also, in commenting upon Dr. Fraser's address, differs in opinion from him, regarding the isolation hospital as a necessity *pro bono publico*, and any failure of the system is due "largely to defective administration. . . . We must confess to surprise that this was not made the basis of the demand for an inquiry. To our mind, that is the true conclusion to which all the papers on the subject point. But what does it mean? It means the indictment of the local authorities and their advisers for faulty construction and mismanagement. Hospitals play a very important part in the methods at our command for dealing with infectious diseases, and the sooner the administration of those which are defective is put on a proper and efficient basis the better it will be."

[No reference appears to have been made in this discussion to the matter of improper or inefficient notification. In every large city where hospital isolation is provided, a considerable percentage of those attacked, living in well-to-do families, are treated in their own homes, and while isolation is required it may be of a very different character from hospital isolation. Again, very many cases, mild in character, but still quite as infectious as severe cases, are treated in families without the attendance of a physician, no notification being made. (But the law requires it as much of the householder as of the physician, in Massachusetts.) And, lastly, cases are not rare in which the disease is entirely unrecognized. All these classes may, and undoubtedly are, fruitful means of the spread of infection, so that it is difficult to estimate the actual value of a system

[11] Bull. et mem. de la Soc. Med. de Hôp. de Paris, 16, Third Series, 1902, p. 1063.
[12] Medical Magazine, August, 1903, p. 564.
[13] The Medical Magazine, August, 1903.
[14] Public Health, August, 1903, 652.
[15] Is the Hospital Isolation of Scarlet Fever Worth While? by A. M. Fraser, M.D., Medical Officer of Health, Portsmouth. Public Health, January, 1904.

which is from the nature of the case imperfect in its application.]

CONFIRMATORY CULTURES IN DIPHTHERIA.

Dr. J. S. Billings, Jr.,[16] finds that, while in a certain percentage of cases the diphtheria bacillus fails to appear in the first cultures, the failure is generally due to a conjoined infection with the septic micrococci. Aside from these cases, the statement that the case is probably not diphtheria can be made on one negative culture up to the tenth day of the disease. Valid reasons for requesting a confirmatory culture in negative cases are: (1) When there is no growth whatever on the culture media. (2) When there is complete contamination and liquefaction of culture media in cases which are clinically diphtheria. (3) Cases where there are suspicious bacilli. (4) In croup cases where the membrane is limited to the larynx and the duration of the disease is less than five days. Dryness of culture media, scanty growth, and the recent use of antiseptics with satisfactory growth of other organisms than the diphtheria bacilli, do not alone furnish sufficient grounds on which to request a confirmatory culture.

CEREBRO-SPINAL MENINGITIS.

In two German regiments at Homburg and at Darmstadt, there were 1,900 cases of epidemic cerebro-spinal meningitis. The diplococcus of Weichselbaum was found in three cases, once in the nasal mucus, once in fluid obtained by lumbar puncture, and once in the post-mortem exudation. At Homburg the barracks were overcrowded. Emptying them, disinfecting and cleansing them, seemed to stop the epidemic. The disease was also prevalent among the civil population at the same time.

UNCINARIASIS IN MINERS.

The International Congress of Hygiene at Brussels [17] voted in favor of: (1) Complete medical inspection. (2) Declaration of cases. (3) Provision of suitable latrines, both above and below ground, and of dressing-rooms and baths. (4) Cleansing of the soil and ventilation. It may be noted that disinfection — in Germany with milk of lime (whitewash) and in Belgium with cresols — has been used with partial success as secondary to the hygienic regulations as to the care of excreta, water-supply, baths, change of clothing, and supervision.

THE CONFLICT WITH MALARIA (ROBERT KOCH[18]).

It is stated that when, ten years ago, the author was face to face with the combat with cholera, it was recognized that the preventive measures must be directed against the germs which could in every case be demonstrated by bacteriology to be the active agents in the spread of the disease. When he had time to turn his attention to the diagnosis of malaria, he found in a similar way that the blood was infected with a parasitic organism easily destroyed by quinine, which, although it was wholly different from that of cholera, might be attacked and dealt with on a similar principle; and, by means of his experiments at New Guinea, he satisfied himself not only that it was possible to destroy the malarial parasite in human blood, much in the same manner as in the case of the cholera germ; but also that the active agent of malarial diseases was capable of existing only in man and in certain insects of the gnat tribe, and was not to be found in any other organism. This rendered it possible to undertake the necessary preventive measures which have been adopted with complete success. Accounts are then given of the conflicts with malaria at Brioni (Istria) by Prof. P. Frosch, and at Puntacroce by Dr. Bludau. A report is printed of the malaria-expedition to German South West Africa by Dr. Vagedes, and descriptions follow of the conflicts with this disease at Daressalam by Dr. Ollwig, and in the Tuscan Maremma by Dr. B. Gosio. This last investigator declares that only time and a sufficient supply of quinine are needed to stamp out the disease. Dr. E. Martini treats of the precautions taken to avert an outbreak of malaria at Wilhelmshaven, and Mr. Dönitz gives an account of the various species of the anopheles which serve to spread the disease in the different countries where the question has been actively studied. All these essays are illustrated with maps and diagrams.

CAISSON ILLNESS AND DIVER'S PALSY. MODES OF PREVENTION.

Hill and Macleod [20] report the results of experiments and observations relative to this form of illness.

They believe that by proper choice of men (healthy young men, eighteen to twenty-six years old, and not too stout) and regulation of the shift and decompression period, work can be carried out without loss of life at a depth of even 200 ft., *i. e.*, about seven atmospheres, or +100 lbs. pressure.

They also conclude : that the circulation is unaffected mechanically by compressed air, that the cause of caisson disease is the escape of gas bubbles in the blood-vessels, and tissue fluids on decompression. An animal exposed four hours to eight atmospheres of air and quickly decompressed is like an opened bottle of soda-water. The fluids of the body generally effervesce. Recompression causes the bubbles to go into solution, and if applied quickly enough the circulation recommences. The varying symptoms of caisson-sickness are due to the varying seat of the air emboli.

Young men escape caisson-sickness owing to the elasticity of their tissues, and greater facility for collateral pathways of circulation.

Animals can be safely exposed to eight atmospheres of air for four hours, if two hours be spent in gradual decompression. Such exposure can be safely repeated three times a week. By the

[16] N. Y. Med. Journ., Sept. 12, 1903.
[17] Sanitary Record, Sept. 24, 1903, p. 313.
[18] Zeitschrift fur Hygiene, Vol. xliii, 1903, p. 1.
[20] Journal of Hygiene, Vol. iii, No. 4, October, 1903.

choice of suitable men, and proper regulation of the period of compression and decompression, caisson and diver's sickness can be avoided.

One of the earliest American papers upon this subject was presented by Dr. R. T. Davis of Fall River at a meeting of the Councillors of the Massachusetts Medical Society, Feb. 2, 1876.[21]

DISINFECTION.

THE DISINFECTING POWER OF HOT SODA SOLUTIONS.

According to Simon [22] the bacteriological methods of research have rendered it possible to assign very definite limitations to the activity of a number of substances employed as disinfectants, and have made it evident that, owing to the varying degrees of resistance possessed by different species of bacteria, there is a wide range of usefulness for many of the materials which have been proposed for this purpose. The author thought, therefore, that it might be expedient to ascertain how far the common washing soda, used in nearly every household, was capable of being employed for disinfecting the dwelling-house. Reference is made to some previous experiments by Jaeger, Förster, Behring and others. The present tests were mainly directed to ascertain the action of hot solutions of soda of various degrees of concentration on the pathogenic organisms likely to be encountered in dwelling-houses; as, for instance, the diphtheria bacillus, the different kinds of cocci (Staphylococcus, Streptococcus, etc.) and tuberculous sputum. Bouillon-cultures of all these germs were dried on to silk threads and were exposed to the action of 2%, 5%, 10% and 20% solutions of soda. The threads were steeped in the solutions which had been raised to various temperatures from 22° C. to 62° C., for periods which ranged from one minute up to sixty minutes. Tests were also made by infecting different polished surfaces of furniture, flooring, leatherwork and linoleum, which were then treated with a 5% solution of soda at a temperature of 60° C. In a similar way experiments were conducted with tooth-brushes, combs, hair-brushes, kitchen utensils, etc.; also with secretions, such as sputum, pus, etc. Full details are given of all the tests, and the results are tabulated. The author states that even in dilute hot solutions (60° C. to 62° C., such as are employed in the kitchen and laundry), soda is a safe and reliable disinfectant and it is also extremely cheap.

THE STANDARDIZATION OF DISINFECTANTS.

Rideal and Walker [23] say the makers of genuine disinfectants have to compete with others whose preparations are not only worthless, but actually dangerous, while the use of such products gives rise to a false sense of security. The public should know that disinfection — the killing of disease germs — is by no means a simple operation, and the control of disease by this means should form a part of the routine work in every sanitary area under the direction of the board of health. He therefore argues for a bacteriologic test, the details of procedure to be agreed upon beforehand by different investigations, the following factors to be considered: (1) Time; (2) age of culture; (3) choice of medium; (4) temperature of incubation; (5) temperature of medication; (6) variations in vital resistance of same species; (7) variations in vital resistance of different species; (8) proportion of culture to disinfectant. He suggests pure phenol as a standard, since it has marked advantages over a metallic salt. Similar work [24] has been accomplished by the American Public Health Association.

(To be continued)

[21] Report of Proceedings of Mass. Med. Soc., 1875-6, p. 44.
[22] Zeitschrift fur Hygiene, Vol. xliii, 1903, p. 348.
[23] Jour. of Sanitary Institute, paper read at Congress, July, 1903.
[24] Trans. Am. Pub. Health Assoc., Vol. xxvii, p. 247.

Reports of Societies.

THE NEW YORK ACADEMY OF MEDICINE.

STATED meeting, March 17, 1904.

THE President, ANDREW H. SMITH, M.D., in the chair.

The meeting was under the auspices of the Section on Ophthalmology of the Academy, DR. ALEXANDER DUANE, Chairman. The subject of the evening was

THE EYE IN ITS RELATIONS TO FUNCTIONAL NERVOUS DISEASE.

DR. CHARLES L. DANA read a paper on

MENTAL DISTURBANCES PRODUCED BY EYE-STRAIN.

He said it would perhaps be more strictly accurate to announce his title as "Eye-strain and the Psychoses." The term eye-strain was not found in works on psychiatry, but it was a convenient word and one which had become popular. There were two forms. The first, which was eye-strain proper, was of mild gravity and sub-cerebral in its operation. The second was more serious in character, and the cortical centers were involved. This effect might not be distinctly recognized, but it really constituted a brain-strain. It seemed to him that it was only this kind of strain that could work any serious injury. The possible disturbances attributed to ocular defects, he thought of no serious import, since nature provided ample compensation, just as in the case of a leaky heart.

Two groups of psychoses were recognized. In the first were the grave cases, insanity. In the second were included all the minor psychoses, such as hysteria, impulsive acts, sexual perversions, hypochondriacal manifestations, melancholia, etc. At the St. Lawrence State Hospital for the insane the experiment was made of treating the patients by attention to eye defects, but without success. So also at the Willard State Hospital, and here, likewise, no benefit resulted. Dr. Dana then referred to the negative results of the investigation, sixteen years ago, by the Stevens Commission of the New York Neurological Society, of which he was a member. In certain secondary schools for boys he had found cases of a kind of exhaustion psychosis resulting from close application to study. The scholars appeared to be markedly apathetic and depressed, and lost their interest even in out-door sports. No serious results occurred, however, and prompt cures were reported. We believed that such instances were rare and that ordinarily eye-strain was attended only by such mild manifestations as headache, etc.

After watching carefully for twenty years, he had

found scarcely any cases in which eye-strain has proved a source of any serious trouble. When the mind of the individual was a good one, the eye-strain had but little effect. Perhaps, after all, the most interesting psychosis connected with it was that which had prevailed among a certain class of oculists. It was a fact, however, that psychoses are increasing in a marked ratio among the community, and new combinations were constantly arising which ought to be carefully studied and wisely prescribed for.

Dr. Colman Ward Cutler read a paper on

HEADACHE, MIGRAINE, AND OTHER SENSORY DISTURBANCES PRODUCED BY EYE-STRAIN.

It was principally devoted to a consideration of migraine, or sick headache, which, he said, was considered a distinct disease by some. In the *modus operandi* of its production great stress was laid by some writers upon the agency of the eye, while by others this element was practically disregarded. Perhaps the true solution of the question was to be found in a happy medium between these two views. Among the characteristics of the affection were periodicity and heredity. In different members of a family in which it was present it was attended by the same special phenomena. It naturally presented some features which were common to it and epilepsy, and it had been regarded by some, more particularly the French authorities, as practically identical with that disease. It could easily be shown, however, he thought, that such was not the case. Thus, while epilepsy was unquestionably more common in families with a bad history, such as alcoholism, etc., the opposite of this was apt to be true as regards migraine. Again, while many cases of migraine were relieved or cured by appropriate eye treatment, this was not the fact with epilepsy.

The influence of heredity should be fully recognized in migraine as it was fairly constant. At the same time it was undoubtedly true that it was often a reflex neurosis of ocular origin. It had been contended by many that there was such a thing as idiopathic migraine, but as a rule the affection could be traced to some peripheral irritation, and, in the treatment, should be approached from the periphery. There were a certain number of cases, however, which were of unknown origin, and which persisted in spite of all treatment. In these it was often necessary to depend on morphine as a palliation at the time of the attack. Still, in some instances, after persisting for a long time, the disease finally yielded to treatment. Migraine being then, for the most part, a reflex neurosis, all avenues should be tried in turn in order to discover, if possible, the source of difficulty. Not infrequently cases were met with in which the objective symptoms were found to be not dependent on the eyes. The site and character of the headache, it was to be remarked, was of little diagnostic value. Often a dull pain followed upon eye-work.

Migraine, he thought, should be studied from a statistical point of view. Recognizing the tendency in some quarters to associate migraine with the graver forms of nervous trouble, such as epilepsy, Dr. Cutler had made inquiry of Dr. Spratling of the Craig Colony for Epileptics, as to the prevalence of migraine among the patients at that institution, and he had received the reply that it was exceedingly rare.

Dr. B. Sachs read a paper on

THE RELATION OF EPILEPSY, CHOREA AND OTHER MOTOR DISTURBANCES TO EYE DISEASE.

He said that the branch of the subject assigned to him had to do with motor phenomena principally. He might quote statistics almost indefinitely, but statistics could be juggled so as to mean almost anything that one wished. In the first place, he could assert with positiveness that the dependence of the motor neuroses on the eye had been greatly exaggerated, and that however few the instances of this might be, the cases that had been cured by oculists were fewer still. This dependence, it was well known, was chiefly maintained by a certain variety of oculists and pseudo-oculists. By the Stevens Commission of the New York Neurological Society fourteen test cases were thoroughly investigated, and not a single one of them was a case of epilepsy. His experience since that time had borne out the conclusions arrived at by the Commission. The advocates of this doctrine had written and talked a great deal, but such evidence as they had presented seemed to him wholly unsatisfactory. Their great aim seemed to be to impress the general practitioner with the importance of their views, and the general practitioner had too often fallen a victim to them. In an article published in a prominent medical journal Dr. A. L. Ranney had reported a series of cures by eye muscle cutting in cases of grave nervous disease such as epilepsy, and one of the patients, according to the writer, presented the symptoms of cerebral softening. Yet there was not a single one of these reported cases which would stand the test of scientific investigation.

In a recent annual report of the Craig Colony for Epileptics, Dr. Spratling stated that under the advice of Drs. Gould and Bennett 68 of the patients (all but one of whom suffered from astigmatism) had been fitted with glasses, and it was hoped that much benefit might be derived from this treatment. Yet in the next annual report of the institution it had to be acknowledged that in all the 68 cases there had been improvement, and that but slight, in only one. Notwithstanding this brilliant result, Drs. Gould and Bennett still persisted in their opinion that epilepsy might be successfully treated by proper attention to the eyes of the patient. All authorities were agreed that true epilepsy is a serious affection of the central nervous system, that it persists for years, and that it shows a tendency to become aggravated and end in grave degenerations. Only a small proportion of cases could be cured by any known method of treatment. At the Craig Colony it had been demonstrated that, as a rule, the mode of life there enforced was more successful than anything else in bringing about an amelioration of the condition.

In order to show that ocular disturbance had any relation to epilepsy it would be necessary, for one thing, to prove that such disturbance had existed as long as the nervous disease. It was quite conceivable to suppose that some peripheral irritation, such as that from a phimosis or a nasal lesion, might cause a single convulsion, or perhaps more than one, but there was no ground whatever for believing that such irritation was a cause of true epilepsy. If the ocular treatment of epilepsy were entirely an innocent affair it might be regarded with composure, but, unfortunately, this was not always the case. In illustration, Dr. Sachs mentioned the case of a gentleman suffering from nocturnal epilepsy who was advised to consult a certain oculist. He did so, and the result of the treatment he received was to give him double vision, which he found to be far more annoying than the epilepsy itself. So general had grown to be the opinion that nervous troubles are dependent on ocular disturbance that private patients were almost universally found to be wearing glasses, and he thought it would be a great advantage to the patient when such erroneous views had been relegated to their merited oblivion.

Again, as regards chorea minor, or Saint Vitus's dance, this was an evidence of very severe disorder of the nervous system, and it was absurd to suppose that ocular or other peripheral irritation was its cause. He had yet to see a single case of chorea cured by eye treatment. A different variety of the affection was what is known as *habit chorea*, in which the choreic manifestation is a twitching of the eye, the sudden elevation of the shoulder, or other similar movement. In all cases of this kind he believed that a careful examination of the eye and the nasal passages should be made. But even here the eye business had been over-done, and too many of the patients were wearing glasses.

Convulsive tic was not unlike habit chorea, but it was a much more serious affection. In this, as in other motor disturbances, the burden of proof was on those who desired to establish the etiological relation of eye trouble. Such relation might be perfectly clear in the minds of some faddists, but they have as yet entirely failed to present any evidence that would have any weight with those who had no axes to grind nor any special field of medicine to exploit.

DR. WARD A. HOLDEN read a paper on

THE EYE SYMPTOMS OF HYSTERIA, NEURASTHENIA AND THE TRAUMATIC NEUROSES.

He cited a number of cases to show the variety of symptoms met with in these cases, some of them simulating the signs of grave ocular disease, such as atrophy of the optic nerve. There were often found functional disturbances of the retina, pain, paresthesia, lachrymation, photophobia and fine tremor of the lids when lightly closed. After reading, the field of vision might be very limited or double. There might be a ptosis of one or both upper lids, but it was easily distinguishable from paralytic ptosis. The pupils were often nearly normal in size and reaction. The ocular muscular spasm might give rise to diplopia. In a case of traumatic hysteria with functional dimness of vision there was uni-ocular diplopia. The acuteness of vision was usually normal, but the patient sometimes made out the distant letters with difficulty. A patient might state that he was unable to read small type, yet when a plain glass, or almost any other kind, was given him he would read it with facility. There might be apparent blindness in one or both eyes. Anomalies of the visual field were most common in hysteria and neurasthenia. In some instances these were to be regarded as evidence of fatigue of the retina, and in others as psychical in origin; while in still others both causes no doubt participated.

Only rarely was there a central defect in the field. The size of the field varied from day to day. The forms of the color fields were often so bizarre that they did not resemble any known lesion. It should not be supposed that these functional disturbances were met with only in young women. They occurred also in strong men; and in conclusion Dr. Holden related a case of pure hysteria, presenting very serious eye symptoms, in one of the mounted police force of the city. The trouble resulted from a fall from his horse, and when last seen, fourteen months after the accident, the man was in perfect health. The only sign that was left of his eye trouble was a slight trembling of the lids.

THE RELIEF OF EYE-STRAIN AND FUNCTIONAL NERVOUS DISTURBANCE.

DR. JOHN E. WEEKS said that observations regarding the relief of eye-strain and the functional nervous diseases might be made along two lines. One, which is perhaps the more extensive, is that of the results that follow the more or less complete relief of eye-strain by the correction of errors of refraction and by the correction of errors of the muscles. The other is the observation of mental disturbances which have occurred as a result of eyestrain, due to *mal-correction* of errors of refraction and to *mal-correction* of actual or supposed errors of the muscles.

The mental disturbances produced by eye-strain are chiefly those that relate to inability to perform mental work, such as conducting business affairs and performing duties which require the use of the eyes. It not infrequently happens that patients complain of loss of memory and inability to concentrate their ideas along any particular line. The sensory functional nervous disturbances that are produced by eye-strain, or, at least, that are remedied by the relief of eye-strain are headache, affecting the whole or any part of the cranium, vertigo in some cases, transient hemianopsia and other defects in the visual field. The motor functional nervous disturbances that may be caused by eye-strain are unilateral facial spasm and spasm of the *orbicularis palpebrarum*, total or partial, clonic or tonic in nature, usually affecting one eye alone, but sometimes both eyes. The motor nervous disturbances that may be alleviated in some cases by the relief of eye-strain are epilepsy and possibly chorea.

Reports of cases occurring in private practice illustrating the results of the correction of eye-strain as affecting the various conditions were referred to, and in conclusion Dr. Weeks stated that his experience had taught him that many cases of inability to perform work requiring the use of the eyes, many cases of headache and some cases of vertigo and of unilateral facial spasm can be completely and permanently relieved by correcting errors of refraction and errors of the muscles; that true migraine can be favorably influenced, but not entirely cured; that the attacks due to epilepsy can often be rendered less frequent by the relief of eye-strain, and that true chorea is influenced but little.

Recent Literature.

The Nutrition of the Infant. By RALPH VINCENT, M.D. Member of the Royal College of Physicians, Physician to the Infants' Hospital, Late Senior Resident Medical Officer, Queen Charlotte's Lying-in Hospital. New York: William Wood & Co. 1904.

In this little book of about three hundred pages Vincent takes up in detail both the natural and substitute feeding of infants and then considers the bacteriology and chemistry of digestion, disorders of the digestive tract and also those of nutrition. He gives a fairly complete resumé of our present knowledge regarding infant feeding. He is a most thorough believer in breast feeding and, if this is not possible, in modified cow's milk as the substitute. He is a strong advocate of laboratory feeding and is evidently one of the leaders in the introduction of the method of percentage feeding into England. This book should do much to raise the standard of infant feeding in that country and to place it on a more rational basis. We agree most heartily with almost all of the author's views on those subjects, but cannot help feeling that in order to emphasize some of his points he has made

many of his statements on mooted points stronger than the facts justify. We notice a mistake in the year in which the first Walker-Gordon Laboratory was estaolished in Boston, 1901, instead of 1891, and regret that we do not possess the Milk Commission with which he credits us. The chapters on gastric and intestinal disorder and inanition, malnutrition and marasmus are not up to the standard of the rest of the book. Those on rachitis and scorbutus are good.

A Text-Book on the Practice of Medicine. Designed for the Use of Students. By James Magoffin French, M.D., Lecturer on the Theory and Practice of Medicine, Medical College of Ohio; Attending Physician, St. Mary's Hospital; Consulting Physician, St. Francis Hospital for Incurables, Cincinnati. Illustrated. New York: William Wood & Co. 1903.

Dr. French has written a textbook on the practice of medicine, containing 780 pages, which he designs for the use of students, a term which no doubt may be made to include the practitioner as well as the undergraduate, and which is to be preferred to the usual double appeal to the student and the practitioner. Although this volume is somewhat less extensive than many of the recognized textbooks on the practice of medicine, it goes very far beyond an elementary treatise, and discusses concisely, but at considerable length, the important diseases included under the general heading of internal medicine.

In the preface the author remarks that "personal experience has been kept in the background, and the pleasant diversion of case reports has been entirely omitted." This omission is not altogether to be commended. Personal experience is always valuable, and we know of no better way to impress the outlines of disease on the student's mind than by a brief report of actual cases. We are inclined to think that description of disease should in the future give place more and more to an account of the actual occurrences. Conservatism in this matter, however, is still supreme, and narration of cases finds small place in the modern textbook.

The volume is illustrated both by text cuts and by a considerable number of well-executed full-page plates. In the section on the nervous system there is an unfortunate omission of diagrams and cuts, although in no other subject is a graphic representation of processes of disease more useful and more essential to an understanding of the conditions. If economy of space is desired, no better method can be employed than the substitution of diagrams for descriptions in this department. Following the main body of the book a concise chapter is added on clinical methods of examination which should prove useful and practical. The book gives ample evidence of thoroughness in preparation, and no doubt will take its place with the others as a useful guide for students, young or old.

On Syphonage and Hydraulic Pressure in the Large Intestine. By Ralph Winnington Leftwich, M.D., Late Assistant Physician to the East London Children's Hospital. New York: William Wood & Co. 1903.

This entertaining little book of eighty pages calls attention to the similarity of the larger intestine to a siphon, and explains many physiological and pathological phenomena from this standpoint. Emphasis is also laid upon the hydraulic principles which are exemplified in the arrangement of the ileum, cecum and colon. Syphonage and hydraulic pressure offset the large intestine's feeble peristalsis and are rendered effective by the tonic contraction of the longitudinal bands of the large bowel which hold it rigid. Erect position favors syphonage, as experience teaches.

The discussion of constipation, typhoid fever and appendicitis in the latter part of the volume is not particularly instructive.

A Short Practice of Gynæcology. By Henry Jellett, B.A., M.D., B.Ch., B.A.O. (Dublin University), F.R.C.P.I., L.M., Ex-Assistant Master, Rotunda Hospital; Externe Examiner in Midwifery and Gynecology, Royal University of Ireland; Examiner in Midwifery, Royal College of Physicians, Ireland; late University Examiner in Midwifery and Gynecology, Dublin University. Second edition, revised and enlarged, with 223 illustrations. London: J. & A. Churchill. 1903.

This is a book of 406 pages, well printed and illustrated but poorly bound. The author has used good judgment in handling his material, and, with a few exceptions, has included little useless matter and has brought into prominence the important topics. His plan of placing at the beginning of each section the Greek and Latin derivatives from which the different diseases and operations take their names is to be commended as making clearer the meaning of the terms.

The author leaves out extra-uterine pregnancy on the ground that this affection belongs to the domain of obstetrics; this is to be regretted.

The chapters on cancer uteri and diseases of the ovaries, also those on diseases of the pelvic peritoneum and uterine ligaments, are to be especially commended for clearness and conciseness. The figures on the different sorts of genital atresia (pages 217 and 218) are original and give a good idea of the conditions, but it is a question whether it is wise to leave out the customary account of the embryological development.

The portion of the book devoted to gynecological operations is in the main up to date and clear; the aseptic technique, however, does not reach the high standard we in America are accustomed to find in our textbooks. There is no doubt but that this book will prove popular among students and practitioners.

THE BOSTON

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AN EXPLOSIVE OUTBREAK OF TYPHOID FEVER.

ABOUT five miles before reaching Hamburg the River Elbe divides into two arms, the Northern and Southern Elbe, which reunite below the city, enclosing thus the very considerable island of Wilhelmsberg, some ten square miles in area, of which a plan and a description are given by Bachmann and Rattein in a recent article (*Gesundheits Ingenieur*, p. 12, 1903). A peculiar feature of this island is the extent to which it is traversed in all directions by shallow watercourses, filled with abundant marsh vegetation. The rural population inhabiting this area are for the most part housed under very insanitary conditions, which are herein described. Among the 20,000 inhabitants, diarrhea and typhoid fever are usually prevalent every year during the summer months, but in July, 1902, in the Reiherstieg district, a violent outbreak of typhoid fever, which involved 44 families living in two double blocks of dwellings, made its appearance and occasioned in all 61 cases of illness, of which an account is given. The water-supply was at first regarded as free from suspicion, as the water for all the 44 dwellings was drawn from one tube-well of good construction, some fifty feet in depth, but the water was found on examination by the Hygienic Institution of Göttingen to be infected. It is shown that, owing to the imperfect construction of the joint of a pump by means of which the water was drawn from this tube-well, it had become possible for a leakage to take place of very filthy water from a drain which ran close by, and by this means the water had become so polluted that no less than 480,000 germs per cubic centimeter were found in the pump-shaft. After thorough disinfection the numbers sank to very insignificant proportions, and indicated that the water of the well was in itself of good quality. It was not possible to demonstrate, by actual cultivation-tests, the presence of the typhoid-fever bacillus, but the condition of the water before and after discovery of the defective joint left no doubt that the outbreak was attributable to this cause.

THE DISINFECTION OF DWELLINGS.

IN a recent paper by Kister & Mathes[1] upon the Disinfection of Dwellings, attention is directed to the increasing use of formalin, which, whether employed as vapor or spray, is gradually taking a very prominent place among the disinfectants available for use in dwelling-houses. In those cases in which it becomes necessary to undertake a very searching and complete disinfection, the use of a fluid medium, with which all exposed surfaces can be saturated, and which can be forced into all chinks and crevices, is greatly to be preferred, and hence, in addition to treatment with vapor or solution of formic aldehyde, some mechanical process of scouring with hard brushes, or rubbing down with bread, is resorted to. In the case of floors and painted surfaces, the employment of abundant scrubbing with soft soap and dilute carbolic acid is also needful. As a valuable aid to internal disinfection, the authors explain the construction and use of the portable apparatus invented by Mr. Zorn, and they give the results of certain practical tests carried out in two of the rooms of the Hygienic Institute of Hamburg, one of which was treated in the ordinary way, and one of which was disinfected by means of the above apparatus. The test-substances employed were in each case as follows: Staphylococcus pyogenes aureus, Bacterium coli, Bacillus diphtheriæ, tuberculous sputum, and spores of highly resistant potato-bacillus. The rooms were of nearly equal size, and while the one dealt with on the old system needed the work of three men for two hours and thirty-five minutes, the disinfection of the other room by means of the new apparatus took the same staff only twenty-five minutes, and involved the use of a smaller quantity of carbolic acid solution. By means of diagrams, the mode of employing the spray appa-

[1] Gesundheits-Ingenieur, March 10, 1903.

ratus is explained, and the results of the process in each room are set forth in tables. In the former case 87.5% of the germs were destroyed, and in the latter 88.2%, but the saving in time was very considerable. In neither instance was the disinfection perfect, and some later experiments herein described gave very similar results.

PULLMAN CARS AND MONEY, ROOTS OF EVIL?

It is rumored, and we sincerely trust with authority, that the manufacturers of Pullman cars are awakening to the fact that ornateness of decoration is no longer desirable. Apparently, this change of heart has come about through a regard for the health of the passengers, rather than through merely esthetic considerations. However this may be, the reform will be welcome from every point of view. Plain severity is to take the place of the overdone ornamentation with which we are all familiar, and there can be no question that both the comfort and the health of passengers will be subserved thereby. It has long been a source of wonder to us why, in the crowded space of the ordinary car, every effort should be made to make the space seem still smaller by meretricious ornamentation, unnecessary, and therefore in bad taste.

It has been a somewhat gradual process for the public to recognize the possible dangers lurking in those situations where dust is allowed to collect in large quantities. When such convictions have finally been reached, it is the usual experience that the reformers go to extremes in their attempts to remedy the evil. While recognizing fully the possibility of danger in the ornate decorations of the Pullman car, we are inclined to think that the risk has been exaggerated.

The complete education of the public in sanitary matters is proverbially difficult. On the one hand there is the possibility of minimizing dangers, and on the other the almost equally disastrous tendency of finding danger where none exists. Our experience with tuberculosis in the last few years has been an example of just this difficulty. It has been eminently desirable to impress upon the public the danger of contagion; on the other hand the public evidently has taken the matter with undue seriousness, leading in certain states to restrictive laws which neither can nor should be enforced, and to conditions of fear which certainly do not conduce to the public health. The same may in a general way be said of bacteria of other varieties. If all that was said of these hidden dangers were true, our peace of mind would be wholly at an end. Fortunately, common sense, aided by increasing scientific knowledge, ultimately saves the day.

Commenting on the dangers supposed to exist in dirty money, the *Medical Press* makes the following pertinent remarks:

> It is really time that some check were put upon the scaremongers who daily and hourly face the public with some fresh disaster arising from the invisible evil germs that lurk in every corner of the earth, civilized or savage. Kissing, hand-shaking, hair-cutting, the consumption of unboiled water, oysters or milk, the reading of library books, all, in short, that makes life tolerable, is sternly forbidden by the anti-bacterial maniac, on the ground that the man in the street may by abstinence avoid the evil day. It would be easy to show, however, that the scaremonger, in reality the mildest of Fleet Street journalists, directs his appalling onslaught merely on popular points. Were he consistent, his range of possible microbial infection is so wide that to avoid the malevolent germs man would be no longer able to eat, drink, walk, sleep, smoke, swim, or come into contact with any object in earth, air, sky, or sea. The latest fad is that money should be disinfected. It must be at once admitted that coin in the course of circulation becomes charged with many micro-organisms, good, bad, and indifferent. Now and then it may doubtless convey the infection of disease, more especially if the owner be incautious enough to introduce it into his or her mouth. In the vast majority of cases it is harmless, and a large proportion of the population of the United Kingdom would willingly run the risks of prolonged and continuous contact with any amount of coin of the realm. If coin is to be disinfected, so should door-handles, hand-rails, omnibuses, railway-carriages, penholders, pencils in post-offices, postage stamps and a countless host of things that might act as public distributors of germs. There is more to be said for the disinfection of paper money, but even that seems to be a mere "counsel of perfection." Meanwhile, there are plenty of real microbial dangers apart from the bogus scares of the bacteria-mongers.

On the esthetic side no doubt clean money is wholly desirable, and any means tending to its wider circulation should undoubtedly be encouraged. The same is true of the ornamentation of the sleeping car. It is, therefore, desirable that physicians in general should impress upon the public, so far as may be, the desirability of care in all matters relating to personal or public hygiene, but it is also imperatively necessary that they should not magnify into positive dangers what simply are inconveniences, discomforts and esthetic annoyances.

SOMETHING ABOUT SHOES.

WHILE the primary object of a medical society is to stimulate interest in medical matters among its members, societies of influence can command the attention of a larger audience than that limited to their members. If deliberate consideration of selected subjects is arranged by influential medical organizations and carefully reported upon by competent critics, such reports cannot fail to have weight in the community.

Some of the work of the Boston Society for Medical Improvement, one of the oldest medical societies in the country, may illustrate this fact. The reports and meetings organized by the Society to discuss medical education, the evil effect of street dust, the health of school girls, smallpox and vaccination, the pathology of smallpox, blood pressure and surgical shock have excited much more than local interest, and have been quoted and referred to extensively.

The subjects of scoliosis, of tuberculosis and of antiseptic details have been recently carefully considered. At the next meeting of the Society (announced in another part of the JOURNAL) the subject of "Shoe Deformities and Shoes" is to be presented. If all the members of the profession who have suffered and are suffering, or who are about to suffer from the ills due to faulty shoes attend the meeting, which is to be an open one, one to which all physicians are invited,— there will be no lack of a sympathetic audience to stimulate the speakers and to absorb information which may be of service to many people.

MEDICAL NOTES.

PATHOLOGICAL EXHIBIT AT THE ST. LOUIS FAIR. — Under the general direction of the American Medical Association a pathological exhibit will be provided for the St. Louis Fair, covering the fields of pathology and bacteriology.

ENDOWMENT FOR MEDICAL EDUCATION. — It is announced that Sir Donald Currie has given £100,000 to University College of London, available on its incorporation with the University of London. A new building will be erected on land which has been procured, but the exact way in which the gift will be expended has not yet been determined upon.

MEASLES IN PHILADELPHIA. — It is reported that there are upwards of 3000 cases of measles under treatment at the present time in Philadelphia, and that during a recent week seventeen children died from the disease. Attention is called to the fact that the disease this winter has been more serious in its results than scarlet fever, due in a measure to the popular impression that it is a trifling affection.

BULLETINS OF THE UNIVERSITY OF CALIFORNIA. — It is announced that bulletins of pathology are to be issued from the medical department of the University of California under the auspices of the pathological department. It is a matter of regret that original work of merit should continue to be published in special bulletins of small circulation. Excellent as such periodicals may be in themselves, their multiplication, for obvious reasons, is at the present time wholly inadvisable.

MEDICAL RESEARCH LABORATORY IN PARIS. — A new Medical Research Laboratory was opened in Paris on March 21, with comparatively small ceremony, Prof. Charles Richet acting in the capacity of spokesman for the Faculty of Medicine. The laboratory is built within the line of the old fortifications of Paris, and is intended especially for animal experimentation. Every care has been taken that animals may be kept under the best hygienic conditions. The laboratory is to be under the direction of the Faculty of Medicine, the city giving the ground and the Medical Faculty paying the cost of building and equipment. A considerable amount of money was also given by other persons interested.

CHICAGO WATER SUPPLY. — According to the *Bulletin of the Chicago Health Department* the city water is still bad, all stations showing the presence of serious contamination during the last three days of the week. Nearly every sample shows the presence of colon bacilli and an excessive number of other bacteria. This condition is becoming progressively worse, and may be expected to continue for some weeks. The supply from the Chicago Avenue and the C. H. Harrison cribs has been contaminated for more than a week; that from the other stations has been "safe" only one day each.

The number of positive reactions in the Widal test for typhoid fever is double that of last week, showing that typhoid fever is on the increase, as was forecast in the Bulletin of March 5. This, of course, will continue, especially among those who drink the contaminated hydrant water. All water at the present should be sterilized by boiling.

MEDICAL AND DENTAL PROFESSIONS UNITE ON QUESTIONS OF LEGISLATION. — According to the *Medical News* the Chicago Medical Society

and the organized dental profession agree that all questions of legislation and larger public policy relating to medical and dental affairs shall be referred to a committee, to be known as the Committee on Public Relations. This Committee is to consist of ten members, five from each profession. It shall have a chairman and a secretary. Any questions of public policy or public relation affecting either the medical or dental profession, or of legislation affecting directly or indirectly either of them, can be referred to this Committee. It will be the duty of the Committee to carefully consider these questions. It will have the power to recommend either specific action or general attitude to the societies from which the members come as delegates. There shall be an annual meeting of the Committee at which organization shall be effected and continued. Other than this the meetings shall be special, and can be called by the President or by any two members. The officers shall be elected for one year. The method of election of the delegates and the length of their service shall be regulated by the societies which they represent.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon April 6, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 19, typhoid fever 2, measles 197, smallpox 0.

A Home for the Aged. — It is announced that through the will of Mrs. Julie H. Nevins, whose husband was formerly of Methuen, Mass., a home for the aged is to be built and sustained at an expenditure of one million dollars. No definite plans have as yet been made as to the site of the proposed building, or whether it will be established within the city limits or in the country. It is to be designed for the accommodation of one hundred persons.

Censors' Examination, Suffolk District Medical Society. — The censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society, at 8, The Fenway, on Thursday, May 12, 1904, at 2 P.M. Candidates should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination. For further particulars, apply from 2 to 3 P.M., to L. R. G. Crandon, M.D., Secretary, 366 Commonwealth Avenue.

Massachusetts Emergency and Hygiene Association. — At the annual meeting of this association, recently held in Boston, Dr. James J. Minot, the president, spoke favorably of the training of women attendants at the Vincent Memorial Hospital, and stated that their services are greatly sought. Dr. Minot was re-elected president; Dr. H. P. Walcott and others, vice-presidents, and Dr. R. G. Loring, treasurer.

NEW YORK.

Dispensary Building of Mount Sinai Hospital. — The children of the late Mayer Lehman, who for nineteen years was one of the board of directors of the Mount Sinai Hospital, have contributed $93,000 for the new Dispensary Building of that institution, which is to be dedicated in perpetuity in memory of Mr. Lehman.

Bequests to Hospitals. — By the will of Maximilian Schaefer, a wealthy New York brewer who died recently, $12,000 is bequeathed to charities, $7,500 of that amount being left to the German Hospital and Dispensary. Mrs. John E. Parsons has contributed the sum of $1,000 towards the permanent endowment of the New York Eye and Ear Infirmary.

A Heavy Pair. — Mrs. Chauncey Morlan, the lesser half of probably the heaviest married couple in the world, died at Huber's Museum, New York, on March 30. At the time of her death she is said to have weighed about 420 pounds, but her husband states that when she was married to him eleven years ago, at the age of twenty, her weight was 582, and that she retained this weight for over ten years. Her height was six feet, one inch. Morlan's own weight he gives at 748 pounds.

Improvement of Raymond Street Jail. — In consequence of its bad sanitary condition, President Darlington of the Health Department recently ordered the old Raymond Street Jail in Brooklyn to be vacated, and the sheriff of Kings County was consequently put to his wits' end to know what to do with the prisoners under his charge. Sufficient influence has now, however, been brought to bear upon the Board of Estimate and Apportionment to secure an appropriation of $20,000, and it is stated that for that sum the jail can be placed in excellent repair.

Public Comfort Pavilion. — In the new De Witt Clinton Park, on the bank of the Hudson between 52d and 54th streets, there is to be

erected the largest, handsomest and most expensive public comfort pavilion in the city. In it there will be baths for both sexes, in addition to the usual equipment of other public comfort stations, and the estimated cost is $50,000. The facade, 132 feet long, will be typically Italian, with a colonnade similar in construction to a pergola, 206 feet in length, which is to be erected directly opposite to it.

DEATHS IN FEBRUARY. — The bulletin of the State Department of Health for the month of February shows that there were 12,749 deaths in the state during the month, an average of about 440 per day. No previous February mortality has ever equalled this, which exceeds by almost 2,000 deaths the average for the month during the past five years. Pneumonia was the chief cause of the increase. An epidemic of influenza has also prevailed during the last three months. An outbreak of typhoid fever dedeloped in Watertown, Jefferson County, and has continued through February and March. Up to the present time about 600 cases have occurred, with 48 deaths. Smallpox, the bulletin states, exists in forty-seven municipalities in the state.

Miscellany.

CIRCULAR OF THE IMPERIAL BOARD OF HEALTH OF GERMANY UPON TUBERCULOSIS.

THE Imperial Health Board has issued a valuable circular for popular distribution, the topics treated being:

(1) What is tuberculosis? In this portion it is stated that 100,000 persons die in Germany from this cause in each year, and one-third of all the deaths at the wage-earning period of life (fifteen to sixty years) are from the same cause.
(2) In what manner does one become infected?
   (*a*) By breathing in the bacillus arising from dried sputum, or by the minute moist drops thrown from the mouth while coughing or speaking.
   (*b*) By the food.
   (*c*) By wounds or abrasions of the skin or mucous membrane (enumerating many of the modes in which this method of infection may occur).
(3) How may one avoid infection?
(4) Advice to those who are specially exposed to infection.
(5) Advice to the sick.

(The cost of this excellent circular is 25 marks per 1,000, less than one cent each.)

THE WATER SUPPLY OF PARIS.

ALTHOUGH some of the newspapers have fallen into the trap laid by the nomenclature often used in France and more generally in Germany, and have announced that an outbreak of typhus fever has occurred in Paris, the fact is, as mentioned by our correspondent early this month, that the outbreak is one of typhoid fever. It began apparently during the third week of February, and the latest returns show that the number of cases under treatment is steadily increasing. The occurrence has given rise to a lively attack by some of the Parisian journals on the body responsible for the administration of the water supply of Paris; one of the newspapers has announced its intention to placard the infected districts with a notice advising the inhabitants to boil all drinking water. On the same day the Municipal Council adopted a unanimous resolution blaming those responsible for administrating the water supply for not notifying the people of the risk they ran. This had been preceded by an announcement from the Prefect of the Seine to the effect that the recent torrential rains "had modified the régime of the water," and recommending all inhabitants of Paris to boil all water used for drinking. Bacteriological examination of the water collected in certain areas is stated to have shown that it contains bacilli which, though not enteric, are of a suspicious character. — *British Medical Journal.*

GLYKON: THE REINCARNATE GOD ASKLEPIOS.

IN the Bartlett Collection of bronze statuettes at the Boston Museum of Fine Arts is one which has considerable interest for the followers of Æsculapius. It is thus commented on in the last bulletin of the Museum:

The small serpent with semi-human head is an object of much greater interest than would at first appear. It represents Glykon, the reincarnate god Asklepios, whose worship established about 150 A.D., flourished for a century or more throughout Asia Minor and even reached Rome. The story of the origin and spread of the cult is told with much entertaining detail in Lucian's "Alexander, or the False Prophet."

This Alexander was a native of Abonouteichos, a Paphlagonian town on the southern shore of the Black Sea. Of great natural gifts, he was the apt pupil of a certain sorcerer-physician who had learned the magic art from the notorious Apollonios of Tyana. After the death of his master, Alexander found himself a partner with whom he wandered for a long period in Asia and Europe, practicing the profession of magician. Finally, at Pella in Macedonia, they bought a large tame serpent for a few obols, and, to make gainful use of his acquisition, hit upon the scheme of establishing an oracle in Alexander's native town. Accordingly they buried and later caused to be discovered, in the very ancient temple of Apollo in Chalcedon (on the Propontis opposite Byzantium), bronze tablets foretelling that Asklepios was about to return to earth and take up his abode in Abonouteichos. The citizens of that place, moved by the honor thus done them, forth-

with set about building a temple for the god, while Alexander presented himself as his divinely appointed priest. On a certain morning, fantastically apparelled, he led the people to the site of the new temple, went singing and praying down into the water that had collected in the excavation, and drew thence an egg. This broken, a small snake issued forth and twined itself about his finger. Thus was Asklepios reborn and prophecy fulfilled in the eyes of the amazed, adoring multitude. (The egg had been deposited in the mud the preceding night by the crafty priest. It was a goose's egg, with the snake substituted for its contents and the aperture closed with wax.)

A day or two later the people were admitted to a dimly lighted chamber where their priest, gorgeously attired, sat with his serpent-god's body twined about his neck and its tail reaching the floor in front of him (to such a size had it miraculously lengthened) and — greater wonder — its face, peering through the prophet's beard, seemed almost human. The body belonged to the tame snake bought at a bargain in Pella; the head the people saw was an affair of linen, cleverly fashioned and painted in some degree of human likeness, with jaws and fangs worked by means of horse-hair.

When at length the temple had been completed, the new Asklepios, as prophet and physician, gave counsel or information on any matter laid before him for a fee or one drachm and two obols (a shilling). Questions coming in sealed scrolls — with the fee — were returned, answered, with seals unbroken. (Alexander was an adept at duplicating seals, or removing and replacing them undamaged). Responses were in verse, and often ambiguous or unintelligible, in accordance with oracular tradition. The annual income from fees alone was some 70,000 to 80,000 drachms, beside that from the many gifts prompted by hope or gratitude or fear. For a great price, too, it was vouchsafed wealthy and powerful patrons to hear Glykon's response from his own mouth. The well-trained snake would sit coiled up with his head erect, as we see him in the statuette, and wearing his linen mask, which had been fitted with a tube (made of cranes' windpipes, says Lucian), into which a concealed attendant would recite the verse the astonished inquirer heard issuing from the serpent's mouth. Such an "autophonous" oracle sent a general of Marcus Aurelius to overwhelming defeat at the hands of the Parthians. The victory another "autophone" had promised if the Romans should cast a pair of lions into the Danube was won by the enemy. (This episode of the lions is commemorated on the column of Marcus Aurelius at Rome.)

In spite of conspicuous ill guessing and of some exposures of his trickery, Alexander continued successful to the end, partly owing to the protection of the greatest of his dupes, Rutilianus, a powerful senator who became his son-in-law, and whose influence augmented his prestige and assured him against the interference of Rome. The prophet even secured a change of the name of his city from Abonouteichos (Wall of Abonos) to the aristocratic Ionopolis (City of the Ionians).

The cast beside the statuette is from one of the earliest coins issued under the new title, a bronze of Lucius Verus (161 to 169 A.D.), with that emperor's bust and name on the obverse, and on the reverse Glykon with his name and that of the Ionopolitans. Coins of Ionopolis continue to show the effigy of the god at least until 252 A.D.

In the course of his account of this most successful ancient religious imposture, Lucian remarks that innumerable portraits were made of Glykon — paintings and images of silver and bronze. This little figure is apparently the first of these images to be discovered. It shows, incidentally, how well the art of bronze casting was still practiced as late as the latter half of the second century A.D.

Correspondence.

THE GRAPHOPHONE IN THERAPEUTICS.

March, 1904.

Mr. Editor: In Japan during the summer of 1899, a friend of mine and I hired a small island situate in the bay of Sagami, about a dozen miles south of Kamakura and a hundred and fifty yards from the mainland, upon which was a small fishing village called Sajima. The island was of about two and a half acres in extent, sacred to Teujin, the god of caligraphy, and therefore known as Teujinshima. Upon it was a single house large enough for us and our entourage, together with a shrine devoted to the memory and worship of Teujin. The whole outfit was the property of the Imperial household and came into our temporary possession in a very complicated, roundabout and Japanese fashion, the details of which are too numerous to mention. A common friend of ours came to visit us on the island. He had just returned from Formosa and was broken down from a combination of dysentery, malarial fever and rheumatism which had confined him to hospital for six months. He had been very ill and came to us in hopes that the quiet and isolation of our insular paradise might benefit him. He did not improve, but gradually grew feebler and finally was obliged to take to his bed, as we say, which in Japan means that he did not rise from the floor. With this increasing weakness there developed a constipation upon which neither Cockles pills nor Hunyadi Janos water had any effect. After a week's delay in having a movement of the bowels, my friend and I held what is known in the practice of medicine as a consultation. We decided that the case demanded the administration of an enema. We commanded and carefully supervised the concoction of an injection composed of hot water, glycerine and soapsuds, a pailful. After the injection fluid had been compounded and pronounced good, we made the discovery that although we had plenty of ammunition we had no gun. There was no syringe on the island, not even a Royal P., and none nearer than Tokyo, a distance of some sixty miles. We had a small bamboo which we fashioned into an excellent anal pipe but nothing more. It was suggested that we each blow successive mouthfuls of the injection into the rectum. This idea was rejected as being more likely to produce nausea in us than defecation on the part of the patient. There was a graphophone in the house with which we used to amuse the Japanese kids who swam over every day from the mainlaind to visit us. We were both struck with the fact that the india-rubber tubes of this machine which serve to conduct its vociferations to the ear would also convey fluid. With the help of bamboo, twine and surgical adhesive plaster we spliced the tubes together and attaching the aforesaid bamboo nozzle to one end and the tin trumpet of the graphophone to the other we had an injection apparatus of novel construction but of rare efficacy as its use proved. As the crow flies the distance between the trumpet and the nozzle was a matter of about four feet. The intricate tortuosity of the tubes, however, rendered the distance traversed by the injection one of some yards. The practical results of the use of this acoustic enema were two-fold. Upon the patient the effect was all that could be desired. Upon the graphophone, however, the effect was prejudicial in the extreme. The sounds which issued from it after its prostitution were so fecal and unfit for ears polite that we were obliged to destroy the instrument. I venture to say that this is the first and probably the only instance of the application of the graphophone as an aid to therapeutics.

Shinto.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 26, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,803	523	21.18	25.90	2.44	2.44	.50
Chicago . . .	2,021,086	626	146	21.88	24.91	1.43	4.95	1.37
Philadelphia	1,407,968	585	150	28.41	21.78	2.09	5.22	2.96
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	236	62	25.84	20.76	—	1.28	1.28
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	138	—	26.08	18.11	2.90	5.80	6.52
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	84	27	16.06	25.70	3.21	2.14	—
Boston	617,950	237	61	22.78	18.98	2.11	.42	—
Worcester . .	136,925	47	7	8.50	14.89	—	—	—
Fall River . .	119,349	34	17	14.70	23.53	—	—	—
Lowell . . .	104,402	41	14	9.75	26.82	—	—	2.44
Cambridge .	100,998	46	14	13.04	15.22	—	—	—
Lynn	73,873	27	—	3.70	—	—	—	—
Lawrence . .	72,348	19	6	15.79	31.58	—	5.26	—
Springfield .	72,020	29	7	6.90	10.34	3.45	—	—
Somerville .	70,413	14	1	7.14	28.57	—	—	—
New Bedford	68,863	27	10	18.51	25.92	—	7.40	—
Holyoke . . .	50,538	—	—	—	—	—	—	—
Brockton . .	46,601	17	3	5.88	5.88	—	—	—
Newton . . .	39,310	5	1	—	20.00	—	—	—
Haverhill . .	39,061	8	2	—	12.50	—	—	—
Malden . . .	37,205	17	4	17.64	17.64	—	—	5.88
Salem	37,188	17	3	5.88	—	—	—	5.88
Chelsea . . .	36,499	14	1	21.42	21.42	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	19	4	10.52	47.37	—	—	—
Everett . . .	30,209	3	1	22.22	—	11.11	—	—
North Adams	29,201	13	2	15.40	15.40	—	—	—
Quincy . . .	26,798	12	2	—	25.00	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	23,797	4	1	25.00	—	—	—	—
Brookline . .	23,576	4	—	—	—	—	—	—
Pittsfield . .	22,870	7	1	—	28.60	—	—	—
Medford . .	21,956	2	1	—	—	—	—	—
Chicopee . .	21,692	13	6	7.70	7.70	—	—	—
Northampton	20,314	5	1	60.00	—	—	—	20.00
Beverly . . .	15,807	4	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	0	—	—	—	—	—
Adams . . .	14,745	0	—	—	—	—	—	—
Attleboro . .	14,561	5	—	40.00	40.00	20.00	—	—
Hyde Park . .	14,500	2	1	50.00	—	—	—	—
Newburyport	14,478	6	0	33.33	—	—	—	—
Woburn . . .	14,315	5	2	—	20.00	—	—	—
Melrose . . .	13,819	7	—	28.60	14.30	14.30	—	—
Westfield . .	13,809	2	—	50.00	—	—	—	50.00
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	6	0	16.67	50.00	—	16.67	—
Revere . . .	13,609	2	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	3	1	100.00	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	4	0	—	25.00	—	—	—
Weymouth .	11,350	3	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 4,221; under five years of age, 1,083; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 910; acute lung diseases 978, consumption 462, scarlet fever 43, whooping cough 13, cerebrospinal meningitis 20, smallpox 9, erysipelas 20, puerperal fever 15, measles 50, typhoid fever 51, diarrheal diseases 124, diphtheria and croup 81.

From whooping-cough, New York 6, Philadelphia 1, Baltimore 1, Pittsburg 3, Boston 1, Cambridge, 1. From smallpox, Philadelphia 8, Lowell 1. From cerebrospinal meningitis, New York 13, Pittsburg 1, Providence 2, and Boston, Worcester, North Adams and Gardner, 1 each. From erysipelas, New York 9, Chicago 3, Philadelphia 4, Baltimore 1, Boston 3. From measles, New York 29, Chicago 1, Philadelphia 16, Boston 2, Lowell 1, Brockton 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending March 12, the death-rate was 19.0. Deaths reported, 5,577; acute diseases of the respiratory organs (London) 235, whooping cough 169, diphtheria 65, measles 148, smallpox 6, scarlet fever 31.

The death-rate ranged from 6.9 in Tottenham to 25.8 in Preston; London 20.1, West Ham 18.1, Brighton 23.5, Southampton 13.9, Plymouth 21.5, Bristol 17.6, Birmingham 22.0, Leicester 14.0, Nottingham 21.6, Liverpool 21.9, Bolton 16.3, Manchester 23.0, Bradford 16.6, Leeds 17.6, Hull 16.2, Cardiff, 18.6, Rhondda 17.5, Merthyr Tydfil 21.5, Norwich 23.9, Handsworth 15.7.

METEOROLOGICAL RECORD.

For the week ending March 26, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 20	29.80	40	46	33	70	64	67	W	W	18	17	F.	C.	.05
M . 21	30.31	37	44	30	55	50	52	N W	S	14	7	C.	O.	0
T. . 22	30.04	42	49	34	81	100	90	S E	S W	7	7	R.	R.	.08
W . 23	29.95	48	55	34	93	86	74	W	W	13	13	R.	C.	.16
T. . 24	30.42	47	56	41	55	40	48	N W	S	10	12	C.	C.	0
F. . 25	30.28	48	60	38	71	88	80	S	S W	15	24	O.	R.	T.
S. . 26	29.62	54	70	35	77	44	62	S W	W	20	25	O.	F.	T.
☞	30.06		54	35			68							.29

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † indicates trace of rainfall. ☞ Mean for week.

DELAYED PUBLICATION. — The strike, among printers and pressmen, is now over. And it is hoped to issue the JOURNAL on time from April 14th.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— The regular meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, April 11, 1904, at 8.15 P. M. Dr. Edward H. Bradford will present a paper entitled "Shoe Deformities and Shoes." The paper will be illustrated by many lantern slides. Drs. Lovett, Brackett, Goldthwait and Dane will take part in the discussion. All interested are invited to attend.

ARTHUR K. STONE, M. D., Secretary.
543 Boylston St., Boston.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — A regular meeting of the Society will be held at Hotel Nottingham, Boston, Mass., on Thursday, April 21, 1904, at 7.30 P. M. The meeting will be in charge of the Section on Obstetrics, Dr. Mary F. Hobart, Chairman. Paper, "Three cases of Eclampsia with Accouchement Force," by Dr. Hobart. "Modern methods of Diagnosis and Treatment of Puerperal Septicæmia," by Drs. Marion Nute and Annie Lee Hamilton.

MARION NUTE, M.D., Secretary *pro tem.*
32 Mill St., Dorchester.

RECENT DEATHS.

JOHN METCALFE POLK, M.D., of New York, a young physician of great promise and the son of Prof. William, M. Polk, Dean of the medical department of Cornell University, died from pneumonia on March 29, in the twenty-ninth year of his age. He was born in New York City and was graduated from Yale in 1896 and from the Cornell Medical College in 1899.

STEPHEN P. TRUEX, M.D., of Brooklyn, N. Y., died on March 31, at the age of forty-eight years. He was a sufferer from cardiac disease and had lately had a severe attack of influenza. While performing an operation at the Bushwick Central Hospital he was suddenly taken ill, and died in a few minutes. Dr. Truex was born in Owego, N. Y., and was graduated from the Long Island College Hospital in 1891. At the time of his death he was attending gynecologist to the Bushwick Central Hospital, Brooklyn, and lecturer on obstetrics and gynecology at the New York Post-Graduate Medical School and Hospital.

GEORGE H. HAMMOND, M.D., of Freeport, Long Island, N. Y., died on March 29, from pleuro-pneumonia, aged fifty-eight years. For some years he had been a visiting surgeon at the Nassau Hospital, Mineola, Long Island. A son of his, Dr. Frank B. Hammond, is practicing in Brazil, South America.

PELEG WADSWORTH, M.D., M. M. S. S., died in Malden, April 2, 1904, aged sixty-nine years.

BOOKS AND PAMPHLETS RECEIVED.

Twenty-sixth Annual Report of the Board of Health of the City of Lowell, for the Year 1903.

Twenty-fifth Annual Report of the State Board of Charity of Massachusetts. Boston. January, 1904.

Original Articles.

BILATERAL FACIAL ATROPHY, WITH REPORT OF A CASE AND ITS TREATMENT BY THE SUBCUTANEOUS INJECTION OF PARAFFIN.*

BY BENJAMIN T. BURLEY, M.D., WORCESTER, MASS.

THE rarity of this affection, the interest in its etiology and its recent cosmetic treatment, furnish my excuse for presenting this paper.

In 1825 Parry [1] described among some cases of hemiplegia the first instance to appear in literature of unilateral facial atrophy. From that time up to 1898 Beer [12] had collected 142 cases where the atrophy was unilateral and six cases where the atrophy was bilateral. Since then, I have found previously omitted or subsequently reported 70 cases of unilateral and four (including following case) of bilateral facial atrophy.

The disease has been successively termed "proso-dys morphia" (Bergson, 1837); "trophoneurosis" (Romberg, 1846); "l'aplasie lamineuse progressive" (Lande, 1870); and "progressive facial hemiatrophy" (Eulenberg, 1875). The latter term is still usually employed, but is obviously misleading, not only because the affection is at times bilateral but also because it is common for the process to run its course within a comparatively short time and then to remain at rest. Mœbius advances the term "Circumscribed facial atrophy" to which the same exceptions cannot be taken. Even the simpler "facial atrophy," designating the special case as unilateral or bilateral would seem to be sufficient, especially as we still lack a pathological diagnosis. Before discussing the questions of etiology and treatment, I wish to present the following case:

Miss B., now twenty-three years old and single, was born normally of supposedly healthy parents. Her mother, however, died two months later of nephritis. Her father is living and well. She had no brothers or sisters. No history of chronic disease in any of the family could be elicited. She had measles and pertussis in early childhood and had frequent sore throats, once or twice with formation of a peritonsillar abscess, until almost ten years old. At eight she had her first attack of pneumonia, which ran a fairly severe course, but she made a good recovery and was well until eleven years of age (Fig. 1), when she was again a victim of pneumonia. From this attack she seemed to make a normal recovery and got about again. Her friends, however, noticed that her face instead of regaining its fulness became progressively thinner and her cheeks more sunken. Alarmed at her condition, her family and her physician withdrew her from school, kept her out of doors, and plied her with tonics, cod liver oil and prepared foods. This sort of treatment was kept up for a year and a half without apparent effect upon her face, which was now strikingly atrophic, apparently about equal on both sides, and this had happened so far as she remembered without any subjective symptoms. Pain, paresthesia and any consciousness of fibrillary twitching were absent. The rest of her body seemed to have developed normally in this period. As

* Read before the Boston Society of Psychiatry and Neurology, March 17, 1904.



FIG. 1.—Age 11, before onset of Atrophy.

she felt quite herself and was undoubtedly strong, even athletic, she continued her course at school until it was finished, except for a period when she was sixteen years old. At this time she is said to have had pneumonia again with a good recovery, no cough persisting. At sixteen years she first menstruated, but has done so regularly and normally since.

Her fourth and last attack of pneumonia was at twenty-one, and again after being very ill, she recovered fully. The last two attacks apparently had no effect whatever on the condition of her face. In spite of various and persistent treatment by electricity,

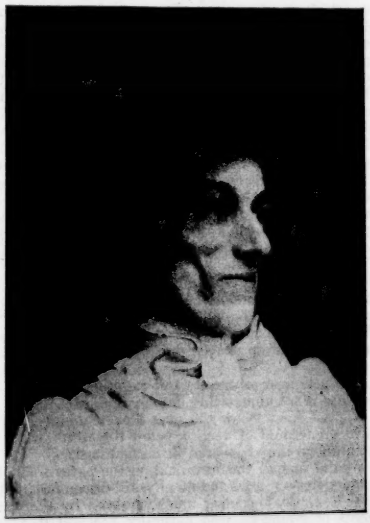


FIG. 2.—Patient just before treatment, December, 1903.

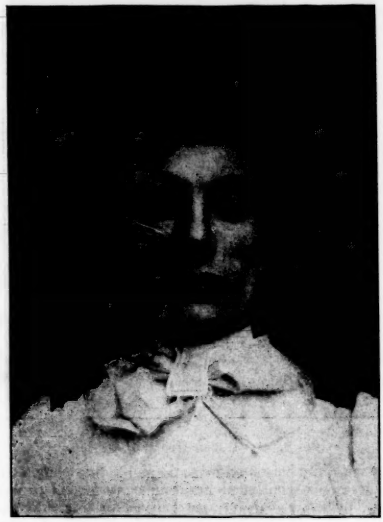


FIG. 3.—Same as Fig. 2. Age 23.

massage, etc., there has been no appreciable change since she was thirteen.

The physical examination of the patient when I first saw her in November, 1903, was as follows: In general appearance, emaciated as to face. Height, 5 ft., 5 in. Weight, 130 lbs. Evidently not of nervous temperament. No stigmata of deviation found. Speech clear. No tremor of any muscles. Movements of eyes normal. No nystagmus. Pupils equal and react normally to light and distance. The skin over entire face is pale and much thinned. The subcutaneous tissues from the orbits to the chin and back to the ears are apparently entirely wanting, the play of the muscle bundles of the delicate facial muscles being plainly visible. The absence of the fat globus leaves also a marked depression in each cheek. The act of laughing causes a marked wrinkling about the mouth. The heart and arteries are normal, as is the pulsation in both carotids. Good resonance over lungs with no rales heard. Abdomen shows nothing abnormal. Quadriceps and achilles tendon reflexes are both present and normal. The superficial reflexes are normal. The muscular irritability to mechanical stimuli is slightly increased, especially in the sterno-cleido mastoid muscle. Sensibility to touch, pain and temperature was normal both for the face and other parts. The electrical excitability of the facial muscles was a little increased (probably due to lack of intervening tissue).

The action of sebaceous and sudoriferous glands of the face is not appreciably impaired.

Viewed from below the eyes looked unduly prominent on account of wasting below the orbits; whereas from above they appeared in normal position.

At the time of this examination the patient had no subjective symptoms and no physical discomfort. She was, however, becoming much annoyed by the comments of strangers, who naturally assumed that she had phthisis or some other destructive disease.

After observing the patient for two months, it was decided to employ paraffin subcutaneously to replace the lost tissue. At the first sitting 1½ c.c. of paraffin of melting point, 109.5 degrees, was injected below each malar process. Aside from a slight prickling sensation coming on occasionally for the next day or two, which was readily relieved by alcohol bathed over the areas, there was no discomfort. The subsequent swelling was slight and disappeared in twenty-four hours. Similar treatments were carried out at intervals of a week, the process of filling beneath the skin being extended outward and downward, both sides symmetrically. At the third sitting 2 c.c. were injected between the buccinator and masseter muscles on each side to replace the fat globus. In all, nine treatments were given, the last three largely to make the surface uniform. To accomplish this, small injections were made at various points. The result at the end of this time is so satisfactory that no further treatment is likely to be necessary, at least for some months. In place of the atrophied subcutaneous tissue, the patient now has a temporary mechanical substitute, namely, an inert, light but firm substance which gradually is expected to give way to new tissue formation. The natural movements of the face are surprisingly little impaired and the patient has ceased to complain of the feeling of stiffness in her cheeks. In fact, Miss B.'s satisfaction in her present over her former condition is enough to itself advocate similar treatment for other cases of this rare disease.



FIG. 4.—After paraffine injection. Before last treatment, February, 1904.

The variety of symptoms in cases of facial atrophy is well shown in the classification of Fromhold-Treu.[10] In 1893 he collected the

cases and divided them into six groups. He included in group (A) 52 typical cases involving one half of the face; in group (B) 19 cases of atrophy of certain areas of the face; in group (C) 24 cases that were in some way complicated by other symptoms or diseases; in group (D) three congenital cases; in group (E) six cases of bilateral atrophy; and in group (F) eleven cases in which the hemiatrophy was not wholly confined to the face. In spite of this variable symptom-complex there are one or two symptoms that are common to all cases.

Mœbius says, "atrophy of the skin is the only constant symptom." It is probable that he means by this all the lower layers and the fat overlying the muscles, for I have failed to find any case where atrophy of the immediately subcutaneous tisues was not either stated or implied. Atrophy of the skin and lack of underlying and supporting tissue is then characteristic. The skin undergoes a varying amount of degenerative change, usually becoming thin and pale, often discolored and pigmented.

The structure of the sebacious glands and hair is next to go and very rarely that of the sweat glands. The degeneration lacks completeness, however, for tactile sense is practically never absent in a pure case and rarely diminished. Beer found a difference in temperature over the atrophic area in 12 out of 20 cases. In 3 an increase; in 9 a decrease. A seeming high percentage of change but often slight in character.

The muscles usually escape atrophy and are prompt in their action. Their electrical excitability to both faradic and galvanic currents is normal or slightly increased. Sachs [13] reported a case showing muscular twitching, but this is extremely rare.

Atrophy of the cartilages, especially of the nose, also of the bones of the face, may occur and give rise to considerable deformity. These occurring in children are to be distinguished from congenital deformities. A fairly common accompanying symptom especially in areas supplied by the fifth nerve is neuralgia. Apparent involvement of the sympathetic is occasionally mentioned and is accompanied usually by dilated pupil, vaso-motor disturbance on that side, increased tear secretion, and cervical, as well as facial atrophy. More unusual symptoms are atrophy of one half of the tongue, and involvement of the organs of special sense. Taste was diminished in four cases. The ears were eight times affected, twice of traumatic origin. The eyes are often affected in some way or other, though aside from their retraction on account of loss of fat from the orbit their disturbance is not characteristic. There have been reported cases of narrowed field of vision, limited motility, abnormal fundi and inflammations of the whole eye. Occasionally the atrophy affects other localities on the same side. Cerebral symptoms with headache, vertigo, epilepsy and insanity have been reported in about 15% of the cases. It is not to be forgotten that even during the progress of the trouble it is usual for the patient to appear well and strong, and when the course of the disease is once interrupted the cosmetic defect becomes the chief factor.

Immediately one starts to consider the etiology of this condition he is struck with the apparently important influence of sex and age. It is characteristically a disease of childhood to which girls are more susceptible. Beer found the ratio of 57 males to 89 females, and found that over 75% of cases were under twenty-one years of age. Among 78 reliable cases the total of instances following trauma was 24%, accompanying nerve lesion 22%, showing lack of development 6.4%; accompanying skin lesion 3.8%, and presumably following infection 45%. Moreover during the first twenty years, when most of the cases occur, about 50% follow infection, while but 15% follow trauma.

Heredity seems to be without influence in etiology: Seeligmueller alone reporting a case where an aunt had some facial atrophy. More remote hereditary tendencies as to neuralgia and migraine have been reported.

The variability of anatomical location of the atrophy; the lack of definite physiological data, such as the demonstration of special trophic fibers; and the scarcity of evidence from pathological findings still leaves us groping for some general etiological factor. The accumulated evidence can, however, enable us to view the subject with greater advantage than had some of the earlier writers. Bergson [2] in 1837 offered the first theory of the disease in which he bespoke the involvement of the nerves supplying the blood vessels. Later Stilling [3] in connection with his work on spinal irritation, produced a case and a theory that the "diminished reflexion of the sensitive vascular nerves upon the corresponding vaso-motor nerves" was the cause of the atrophy. In 1846, however, Romberg [4] gave the disease more prominence by accurate description and classified it as a tropho-neurosis. This classification was given the confirmatory touch by Samuel [5] in 1860, when he published his interesting work on the trophic nerves. Observers since that time, influenced no doubt by the particular characteristics of the case at hand, have changed, disputed, or credited this theory, and the discussion as to etiology has been held open to each new writer. Lande [14] for instance, had a case in which there seemed to be little change except the loss of fat and connective tissue, and he thereupon advanced the theory of primary local affection of this tissue. Baerwinkel [6] and others placed the seat of the disease in the gasserian ganglion; others have called attention to the involvement of the seventh nerve also. Much interesting material has been written on the part which the cervical sympathetic fibers have to play in this disease, from the time of Seeligmueller, [7] the champion of the theory of the paralysis of the sympathetic, and Brunner, [8] the champion of the "permanent state of irritation of the sympathetic," down to the recent work of Barrel. [9]

The monograph of Barrel prompted by the

theory advanced almost simultaneously by Bouveyon of Lyons and Jacquet of Paris may have sufficient bearing upon the foregoing case to warrant further notice. The writer first explains the position of the inferior cervical gangloin of the sympathetic as being more thoracic than cervical, lying as it does just in front of the articulation of the first rib with its vertebral body. It, moreover, is often found fused with the first dorsal ganglion. Its bed is just over the summit of the parietal pleura in a triangular cavity, with the vertebro-pleural ligament below, the costo-pleural ligament and the small scalenus muscle outside. This relation to the pleura and lung figures significantly in the published cases. Quotations are made from physiological experiments on animals. Among others, Floresco[15] in 1899 concluded that after double section of the sympathetic "the skin, the muscular system, the central nervous system, the eye and probably the osseous system, undergo an arrest of development." Barrel then goes on to report six cases, in three of which there was cervico-facial atrophy of one side. This obviously could not be explained by a lesion of the fifth nerve alone. Further, in one of these cases the upper part of thorax and arm were involved, a condition which called attention to the sympathetic as the only communicating system for the nerves supplying these areas. In these three cases there was marked pulmonary tuberculosis, and autopsy on each case revealed the fact that the inferior cervical ganglion on the affected side had become involved in a pachy-pleuritis or cellulitis extending from the pleura. This deposit became fibrous, could hardly be removed and had evidently destroyed the function of the ganglion. In two of these cases either vasomotor, secretory or pupillary disturbance was also present, but in one case there was only the facio-cervical hemiatrophy.

Mendel's[16] much quoted case, autopsied seven years after it had been described by Virchow, showed an interstitial neuritis of the branches of the fifth nerve with degeneration of the fibers. Some of the upper root fibers as well as some cells of the locus ceruleus also showed atrophy. He conjectured from this that the upper root of the fifth nerve contained trophic fibers. Homen[17] has added an important contribution to the anatomical and pathological data. His patient in the course of a few weeks developed an hemiatrophy of the face and tongue accompanied by anesthesia of the region and paralysis of the oculomotor nerves. At autopsy a tumor of the dura was found pressing on the gasserian ganglion, the branches of the trigeminus and partially, the oculomotor nerves. Microscopic examination of the cranial nerves showed the phenomena of degeneration to be very marked in all the branches of the fifth and less marked in the third, fourth, sixth and eighth nerves. In the reported cases following trauma which affect usually some branch or branches of the fifth nerve, it is common, as in cases reported by Bechtereff,[18] Romberg, Banham[19] and others, to get, beside the atrophic disturbance, pain and a diminution of sensibility in the area supplied by the nerve, — probably the attributes of a greater or less degree of neuritis and nerve degeneration. In most of these cases where atrophy persists on top of an interstitial neuritis of the trigeminal Nothnagel admits a lesion of the superior cervical sympathetic ganglion through which pass the vasomotor fibers of the facial region. Nothnagel in this is inclined to overlook the possibility of a lesion of the inferior cervical producing a similar trophic change. Yet Seeligmueller's two cases of injury give some evidence to this effect. Case (1) was a child that had its clavicle and scapular broken in delivery. Not only was there paralysis, motor and sensory, of the right arm, but the right side of the face atrophied and the right pupil dilated. Later, remarkable improvement took place as to paralysis, but the eye and face remained unchanged. Case (2) was a lieutenant, who was struck in the neck just above the left clavicle by a bullet. The bullet made its exit at the fourth dorsal vertebra behind, crossing the path of the inferior cervical ganglion. Paralysis of the left arm occurred at once and considerable suppuration followed. The case was not seen again until nine months later when as in the former case there was found marked atrophy in the corresponding side of the face with pupillary paralysis and some vasomotor disturbance, while the brachial paralysis was fast improving.

From this evidence then and that furnished by the cases reported by Barrel; from the anatomical relation of contiguity if not of anastomosis of the sympathetic fibers with the cranial and cervical nerves, especially at the gasserian ganglion (Vulpian[20]); and from the fact that no other system of nerves is adequate to explain many of the cases of atrophy, it is natural to turn to the sympathetic system as the probable etiological factor. The argument of some writers that the absence of dilated pupil and visible vasomotor change rules out involvement of the sympathetic is hardly conclusive when we recall that these may be only special functions of the sympathetic, and that the fibers to produce them arise from certain regions of the cord. (Langley.[21])

The influence of sensory stimuli in atrophic conditions is a subject of some interest, but from clinical evidence is not of great importance. The fact, however, that "after severance of the afferent roots, the motor nerve cells of their spinal origin soon present recognizable structural change" (Warrington[22]), may prove to be significant. In fact, Dercum[23] believing the disease to be due to a "radical perversion of the afferent stimulus," recommended early resection of the various branches of the fifth nerve.

Weir Mitchell[29] in 1885 published a remarkable case of a girl twelve years old who since the age of six had shown a lack of fat tissue above the waist, the hips and legs remaining normal. He attempted to account for such a condition only on the probabilty of a separate center for

fat nutrition. On account of the accompanying analgesia in his case, he was inclined to place the center in some portion of the posterior segment of the cord.

The diagnosis of facial atrophy can usually be made at once when it is unilateral. The lack of underlying fat and the degenerated skin of one side form a contrast to the well side which can hardly be mistaken for anything but a congenital deformity. When the case is bilateral, however, a diagnosis may only be arrived at after a careful review of the history and after finding an atrophy practically confined to the face which resists all therapeutic treatment. The above reported case is one in point. Miss B. since her pulmonary infection twelve years before had developed facial atrophy. For a long time it was not remarked that the rest of her body was not similarly involved, and in the meantime she was suspected to have phthisis or other chronic disease, and received treatment accordingly. Later, treatment by electricity, massage and oily inductions was more directly applied to the face but without avail. The face still apparently belonged to a woman of twice her years. These facts occurring in an otherwise plump and athletic girl are sufficient for a diagnosis. The resemblance of this case to the second bilateral one published by Mœbius is striking.

As to the etiology in my case I can only point to one or two possibilities. It seems clear that her trouble followed a pulmonary infection, and whether this infection displayed some selective action on the nerves and tissues of the face; or whether, following the suggestion of Barrel, we might not suppose a sufficient involvement of the inferior cervical ganglia in the pleuritis to interfere with their function and cause the loss of their normal influence upon the distributing nerves to the face, will have to be left an open question.

The prognosis in this condition, once the diagnosis is made, is always uniform. The atrophy progresses, usually within a year or two of its beginning, to a certain point; and there the process ends with no danger to life and often without discomfort. It is typically, however, unaffected by treatment toward the restoration of normal tissue.

As to treatment Mœbius says, "Es gibt bisher keine Behandlung;" and this is still true as far as most mechanical and therapeutic measures are concerned. It is natural in every case, however, to give a thorough course of massage and electricity at the same time that the patient is receiving tonics and a fattening diet; and any appreciable result from these measures means an error in diagnosis. Up to 1901 this was the most that could be offered to a patient. At that time, following the idea of Gersuny[24] of injecting vaseline in different parts of the body to replace lost tissue, Luxenburger[25] treated two women from Klaussner's clinic in Munich by the subcutaneous infection of prepared vaseline. These were ooth cases of facial hemiatrophy occurring in girls nineteen years of age, and each had been of about three years' duration. After some months treatment by galvanization without improvement, case 1 was in the course of three weeks given fourteen injections of vaseline in different areas covering the greater part of the left half of the face. Case 2 in whom the atrophy was confined to the lower half of the face and jaw had the contour corrected by only four injections. No mishap occurred in either case and there were no disagreeable subjective symptoms. When seen one and a half months later there had been a slight shrinking of the tissue about the "vaseline depots" which were themselves harder.

Eckstein[26] last year, presented before the Berlin Medical Society another case in which unlike Luxenburger he injected a large quantity of paraffin at one sitting. The patient, a woman of fifty-four years, had had a marked atrophy of the left cheek for forty-four years. Fifteen to 20 cm. of paraffin of 56–58° C. melting point was injected at one time and the patient was discharged the next morning. After six days she returned, the face showing a slight swelling and redness of the part, but no further symptoms. No further report of the case was made.

I find also that, in the report of the Royal Society of Physicians in Vienna for Nov. 6, 1902, Schlesinger presented a similar case whose deformity had been corrected by Gersuny in six sittings with paraffin injection. More recently Moszkowicz[30] and Mauclaire[31] have carried out similar treatment in their cases. I have seen the report of no case of facial atrophy in this country treated in this manner.

The principal use of subcutaneously injected paraffin has been in the treatment of deformities of the nose, and in this manner hundreds of cases have been treated. The results show almost uniform success with careful technique and the operation is seldom attended with marked discomfort or dangerous mishap. Embolism has, however, occurred a few times as in a case reported by Pfannenstiel[27] in which a large amount was used around the rectum and the patient allowed to return home at once. The melting point of the paraffin was not reported which might probably explain the cause.

Paraffin is a hydrocarbon obtained from petroleum by distillation with a melting point varying from about 120° to 160° F. Experience has taught that the most practicable material for use has a melting point around 110°; for, if the melting point be high, injection is difficult on account of rapid cooling and the high temperature is more apt to lead to necrosis; if, however, it is near the body temperature the substance tends to spread and will not support the parts. It is common to add some oily substance to the paraffin to produce a certain melting point. The preference is for a stout all-metal syringe with fixed screw-head so that the paraffin may be forced out gradually by rotating the piston.

The consistency of the paraffin when injected should be soft and pliable so that it comes out like a white thread or comedo. With this precaution that the paraffin be not injected in

liquid form, with strict aseptic technique and with care not to inject enough in one area to cause undue tension of the tissues and consequent disturbance in the circulation, the operation is apparently without danger.

A general anesthetic is not necessary and many do not use a local one on account of the annoyance of the slight local edema. A sensitive patient, however, should have the benefit of cocaine or eucaine locally where the pliability of the tissues will not interfere with the moulding.

The discussion as to what becomes of the injected paraffin is one of great interest. Valuable histological work has been done, but as yet the closing seal of time cannot be put upon the experiments. Mozkowicz found no paraffin in the lymph vessels neighboring the injected area, and finding the paraffin globules surrounded by connective tissue cells, he concluded the paraffin was not absorbed but became encysted. Mauclaire arrives at a similar conclusion, but calls attention to giant cells which appear at the borders of the vacuoles where the connective tisue has penetrated the paraffin. The significance of the cells is not yet determined.

Morton [28] has published some interesting microphotographs of the paraffin in situ in the tissues at intervals of one, two, three and four months after injection. At the end of the first month the globules of paraffin were surrounded by a capsule of embryonic tissue. This tissue was increased at two months and new blood vessels were permeating it. At three months there was marked increase of new tissue, connective, fibrous and embryonic, with a decrease in the amount of paraffin. By the end of the fourth month the space where the paraffin was deposited was entirely filled with embryonic tissue. This the writer says, "shows conclusively that the paraffin soon disappears, whether it undergoes some chemic change or is carried away through the lymphatic system by the leucocytes remains to be settled."

Finally, I wish to express my indebtedness to Dr. James J. Putnam for his valuable counsel; and to Dr. W. G. Curtis for sending me the case and efficiently cooperating in its treatment.

The following cases of facial atrophy make, in addition to those collected by Beer (1898), a total to January, 1904, of 212 unilateral and 10 bilateral cases:

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Maragliano: Salute. Genova, 1879, xiv, 321.
Freudenberg: Aerztl. Int-Bl. Munchen, 1880, xxvii, 425.
Morton: Neurol. Contrib. N. Y., 1880, i, 94.
Boddaert: Ann. Soc. med. de Gand, 1881, lix, 40.
Payne: Tr. Path. Soc. London, 1881, xxxii, 306.
Weiss: Wien. Med. Bl. Wien, 1881, iv, 204.
Wette: Ann. d. stadt. allg. Krankenh. Munchen, 1881, 600.
Seguin: Illst. Quart. M. & S. N. Y., 1882, i, 35.
Jessop & Browne: (2) St. Barth. Hosp. Rep. London, 1882, xviii, 271.
Holland: Am. Pract. Louisville, 1885, xxi, 74.
Grashey: Ann. d. Stadt. allg. Krankenh. Munchen, 1886, iii, 149.
Mills: Syst. Pract. Med. (Pepper) Phila., 1886, v, 693.
Eve: Tr. Path. Soc. London, 1887, xxxviii, 81.
Garrod: Proc. Med. Soc. London, 1887, xi, 351.
Cartwright: Nashville Jour. M. & S., 1888, xli, 191.
Boyd: Illus. Med. News, London, 1889, 51.
Bramwell: Stud. Clin. Med. Edinburg, 1889, 139.
Osler: Am. Jour. Med. Sc. Phila., 1889, xcviii, 261.
Port: Lancet, London, 1889, ii, 1230.
Goldflam: Kron. lek. Warzawa, 1890, xi, 219.
Gosset: Union med. du nord-est, Rheims, 1890, xiv, 316.
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Von Ziegenweidt: Psychiat. en neurol. Baden, 1898, 474.
Höflmeyer: Munchener Med. Woch., 1898, xiii.
Gratschoff: Finska. lak. sallsk. handl. Helsingfors, 1899, xli.
Jagot: Arch. Med. d'Angiers, 1899, iii, 149.
Huber: Archives of Pediatrics., 1899, xvi.
Hoffman: (2) Neurol. Centralblatt., 1900, xxi, 999.
Jadassohn: Corr. Bl. d. Schweizer Aerzte, 1900, 404.
Roque: Ref. Gazette hebdom de Med. et de Chir., 1900, 1161.
Jacquet: Annales de Dermatologie, Aug., 1900.
Mailhouse: Jour. Nerv. & Ment. Dis. N. Y., 1901, 225.
Luxenburger: (2) Munchener kl. Woch., 1901; 1413.
Barrel: De l'hemiatrophie faciale, 1902.
Campbell: British Med. Jour., 1902, ii, 1446.
Frank: Medical Record N. Y., 1902, 13.
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Lewkowskij: (3) Obozsenje psichjatrji, 1902, vi.
Rothmann: (2) Berliner kl. Woch., 1902, viii, 173.
Schlesinger: Wiener kl. Woch., 1902, 1234.
Woods: Woman's Med. Jour., 1902, xii, 54.
Calmette & Pages: N. iconog. de la Salpetriere, 1903, xvi, 26.
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Debray: Jour. Med. de Bruxelles, 1903, viii, 72.
Naka & Hmenomiya: Ij. Shinbun. Tokio, 1903, 816.
Loebl: Wiener kl. Rundschau, 1903, xvii,450.
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Zappert: (Bilateral) Wiener kl. Rundschau, 1903, 400.
Mauclaire: Revue d'orthop., Paris, 1903, iv, 511.
Mozkowicz: (3) Wiener kl. Wochensch., 1903, xvi, 33.

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[25] Luxenburger: Munchener Med. Wochensch., 1901, 1413.
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A MANY-PHASED CASE OF CHOREA.*

BY HORACE E. MARION, M.D., BOSTON.

Mrs. ———, age thirty-seven, died of corrosive-sublimate poisoning at 7 A.M. July 27, 1902. A victim of chorea from childhood, as will be seen later, she gradually became worse. Symptoms of dementia and melancholia, with suicidal tendencies, gradually developed. For a year or more previous to her death she had a trained nurse in constant attendance. On the afternoon of July 26, with the cunning peculiar to this class, she eluded the nurse and swallowed several corrosive tablets which were supposed to be put away beyond the reach of everybody except the nurse.

The immediate effect of the poison was to inhibit the vaso-motor nerves, almost arresting the heart's action, causing the extremities and body to become icy cold, and exciting vomiting and purging. Nothing that was done for her stayed for a moment the fatal termination. Yet for more than twelve hours physicians, nurses and husband worked constantly to relieve what in all reason ought to have been terrible suffering. She never made a single murmur nor expressed the slightest regret for what she had, by her own confession, done.

Family History. — Grandmother and two grand-aunts on her father's side suffered from chorea from childhood. Her father and his three sisters were victims of the same malady, — the father but slightly, the aunts much more severely, one becoming insane and one for many years bedridden and unable to feed herself.

Personal History. — As a child, intellectual and refined, suffering only from chorea in a mild form. Married at twenty-five; giving birth to six children in eleven years — two girls and four boys. The second (a girl) and the third (a boy) died in infancy — one of entero-colitis, the other of marasmus, both preventable diseases. The fatal termination was no doubt due largely to the increasing infirmity of the mother, who even at this time began to show evidence of beginning dementia. All the subsequent children were cared for by a nurse or an attendant. She had measles and whooping-cough after marriage. Other than this she had no illness, save her confinement, until she was pregnant with her fifth child. Early in this pregnancy she began to suffer from parenchymatous nephritis. The urine contained, most of the time, a large trace of albumen, normal blood, hyaline and granular casts. The last of April, 1898, she was seized with pneumonia, which extended to both lungs, making her desperately sick. During her convalescence she had otitis media, extending to the mastoid cells. Undoubtedly the same micro-organism was in evidence, though its presence was not demonstrated by the microscope.

Mastoid operation was performed on June 2 by Dr. Leland, and she was confined June 12. Her confinement and convalescence thereafter were uneventful. During the attack of pneumonia the chorea was much aggravated, she having practically no control of her muscles. Her chorea and mental conditions were such that she spent March and June, 1900, at the Adams Nervine Asylum. At this time she complained mostly of persistent headache, which, however, never prevented her from sleeping.

In April, 1901, she spent two weeks at the McLean Hospital for the same reason. Symptoms of melancholia became more and more pronounced. Her experience at the hospital made a strong impression upon her, and she constantly alluded to the helpless and hopeless condition of many she saw there. About this time she became interested in the Swedenborgian faith. Spent much of her time reading a book entitled "Our Eternal Homes," which alludes pleasantly and beautifully to the hereafter. So unmistakable became her suicidal tendencies that for more than a year a trained nurse was kept constantly with her.

In December, 1900, to her great delight, no doubt by reason of her feeble mental condition, and to her husband's horror, it was certain that she was pregnant with her sixth child. Her husband was much exercised as to the probable condition and fate of the offspring, and strongly pleaded that abortion might be produced. As his anxiety was certainly not without reason, I called to my assistance Dr. J. J. Putnam, who had been familiar with the case for a long time. After careful consideration, weighing the pros and cons, we were agreed that we had no right to assume that the product of this conception would prove a mental derelict and declined to countenance any interference. Gestation was uneventful, as was her confinement on Sept. 4, 1901.

In February, 1901, I removed an adeno-fibroma of the nipple which had been gradually growing since her first child and which was now very troublesome. The specimen was shown to this Society at the time, on account of its rarity.

Ever after the birth of her child until her death, as already stated, she was under most constant observation, both day and night. Chorea was always present. She complained bitterly of headache, which nothing seemed to relieve, although many nostrums and various "treatments," such as Christian Science, electro mesmerism, etc., were tried, only to be soon thrown aside. Dementia became more marked and melancholia more pronounced, until death closed the scene.

Autopsy, Nov. 9, 1903, by T. Leary, M.D. — Body of a woman about forty years of age; well developed; fairly well nourished. Body warm; no rigor.

Peritoneal cavity: fluid somewhat increased, otherwise normal.

Pleurae. — Few adhesions about apices and backs. Lungs moderately pigmented; present several nodules of superficial, lax consolidation of a deep red color,

* Read before the Obstetrical Society of Boston, December 15, 1903.

which are most abundant over back. These foci vary in size from a pin-head ecchymosis to that of a half-walnut. On section are dark red and contain free blood.

Pericardium normal.

Heart. — Of normal size and appearance; valves and cavities normal.

Esophagus. — Posterior surface shows several small elongated superficial erosions whose wedges are bordered by a zone of opaque white coagulated epithelium. These erosions are limited in great part to the lower portion just above cardiac orifice.

Stomach. — Organ somewhat contracted and heavy. Surface congested. Walls tremendously thickened. On laying stomach open summits of rugæ are uniformly discolored a brilliant red, and here and there the intervening sulci show round patches of reddened mucosa. Smaller punctuate ecchymoses are scattered irregularly throughout remaining mucosa. Walls vary in thickness from .4 to 1.4 cm., the greatest thickening being present beneath the rugæ.

Beginning of duodenum shows a continuation of discolored patches for 2 cm. beyond pyloric orifice. Rest of small intestine normal. In cecum and again in lower portion of sigmoid, and in rectum, black masses of pigment are found overlying and intimately attached to mucosa, which, however, shows little or no congestion.

Liver is large, injected; edges slightly rounded; on section drips some free blood; cut surface is grayish-red; opaque; markings indistinct.

Spleen. — Of normal size; capsule tense; consistency slightly decreased. On section Malpighian bodies indefinite; trabeculæ distinct; pulp slightly increased.

Kidneys. — Slightly enlarged; soft; capsule peels smoothly; surface injected and moist. On section cortex increased in thickness; vessels injected; surface opaque; pyramids injected; markings indistinct.

Genitalia. — Uterus of normal size. Left ovary replaced by a thin-walled oval cyst 3 x 1.5 cm., which is filled with clear serum. Right ovary contains a partially organized corpus with gelatinous contents 1 cm. in diameter, a serous cyst 1 cm. in diameter and several corpora fibrosa. Tubes normal.

Microscopic Examination. — Stomach: Thickening of stomach-wall is limited in great part to submucosa and sub-peritoneal connective tissue. Mucosa is completely necrotic along summits of rugæ and filled with free blood. The necrosis becomes more superficial as one approaches the sulci; but everywhere, even in what appeared grossly to be normal mucosa, the superficial cells of gland layer are very granular or necrotic. Surface is covered with a thick layer of mucus, which over rugæ is coagulated and admixed with blood. The loose areolar tissue of submucosa is widely distended with an exudate, largely serous, but more or less hemorrhagic near mucosa. Immediately about the vessels of submucosa and in muscle layers polynuclear leucocytes are abundant. Lymphatics enormously dilated.

Liver: Capillaries dilated and filled with blood, trabeculæ of liver cells standing out with unusual distinctness. Liver cells are very granular and may contain an occasional small droplet of fat.

Spleen: Marked degree of acute congestion; otherwise normal.

Kidney: Glomeruli injected; glomerular vessels show no marked changes. Proximal convoluted tubules stand out distinctly from surrounding structures, taking a heavy eosin stain. High power shows cells lining convoluted tubules to be swollen, granular, complete filling tubules and in large part necrotic. In many tubules the epithelium is completely disorganized and converted into a granular mass without nuclei. The epithelium lining Henle's loops is somewhat swollen and granular. The distal convoluted tubules are less markedly affected and the straight and collecting tubules are normal. There is nowhere evidence of the presence of lime salts in the renal tubules.

Sections of lung through consolidated portions show air spaces, including terminal bronchi, filled with recent blood. Hemorrhages appear to be capillary in origin, arising from vessels of alveolar wall. Outside of foci which were visible in gross, small capillary hemorrhages are evident here and there throughout sections. No thrombi present in vessels.

Brain: Turned over to physicians from McLean Asylum for examination.

Anatomical Diagnosis. — (Corrosive sublimate poisoning.) Acute hemorrhagic esophagitis, gastritis and duodenitis. Capillary hemorrhages into lungs, producing sub-pleural ecchymoses. Acute congestion with granular and fatty (?) degeneration of liver. Acute congestion of spleen. Acute degenerative nephritis with necrosis. Cyst of ovary.

MICROSCOPICAL STUDY OF THE BRAIN OF MRS. ——— BY DR. AUGUST HOCH.

A careful study was made of sections from both paracentral lobules, from two regions of the first frontal convolution on either side, from both first temporal convolutions and from the region of the calcarine fissure on either side. Also from both anterior central convolutions. These pieces were hardened in alcohol and stained by means of Nissl's methylene blue.

It should at once be stated that there are no striking differences seen in sections from these various regions. They all present the same alterations, which may be summarized as follows:

The general architecture of the cortex is nowhere appreciably disturbed, so that any appreciable loss of nerve cells or of the intervening gray substance cannot be demonstrated.

The nerve cells are everywhere markedly altered. They are shrunken, their nuclei rather homogeneous, the cell body often presents a honeycomb appearance. While these alterations resemble in many ways that form of cell change which Nissl has described as the "chronic cell change," it is, to my mind, very unlikely that in such a case we would have such extensive and at the same time so marked changes in nerve cells without any corresponding disorder in the general architecture and without adequate changes in the glia. As a matter of fact, it has been found that a very similar appearance is seen in the cortices of many individuals who die from ordinary somatic diseases, more especially those which lead to a general stasis, and we have been able to show experimentally that this appearance is produced by the action of the alcohol on a tissue, the fluid contents of which is probably somewhat increased. I regard these nerve cell alterations, therefore, as artefacts. The glia nuclei in the lower layers of the cortex are not infrequently found to be somewhat increased, but the nuclei are not otherwise altered. They present no active stages, and the cell bodies are not abnormal except for the fact that many of them contain more pigment (bright yellow) than they would normally. The significance of this pigment is not clear to me, but the increase of the nuclei is evidently of little moment, as it may frequently be seen in cortices of individuals who die from various somatic diseases.

The blood vessels often presented somewhat crumbly looking walls and not infrequently pigment in their endothelium. The spaces around the vessels were normal and presented in no way accumulations of cells. In the vessels were seen an unusual and certainly abnormal number of polymorphonuclear leucocytes.

In a word, the changes found are of very slight importance.

There are no gross changes.

It may be thought far afield to report this case before an obstetrical society. It certainly has food for thought in many departments of medicine. The general practitioner may truly feel that his field is yet broad and that it still remains for the family physician to decide when and what specialist to call.

The obstetrician conducting a physiological process through pathological quagmires to a happy termination must feel that his calling is something more than a blind following of textbooks.

To the neurologist and alienist this case opens up a broad vista in the ultimate nerve-cell process in the neurons of the brain, of which we hope to learn much in the future from those qualified to teach.

But the great question of all, it seems to me, is sociological, — the transmissability of certain brain defects, thus bringing us face to face with that ever broadening question of marriage and the part the medical adviser should play in preventing unions the fruit of which tend to the lowering of the scale of intelligence in the coming generation. Under this head, also, is presented the question of terminating gestation.

In this particular case the future of these offsprings is yet to be demonstrated. The two older are certainly neurotic. The two younger show nothing as yet. The youngest, born when the mother was furthest advanced in her mental infirmity, is extremely bright and attractive.

A CASE OF HUNTINGTON'S CHOREA: ITS SOCIAL ASPECTS.*

BY J. J. PUTNAM, M.D., BOSTON.

I first saw this interesting patient on Feb. 16, 1897, and give such extracts from my notes as may be useful in supplementing Dr. Marion's description.

As regards the family history, besides the repeated cases, five at least in number, which showed themselves in the two previous generations, it is to be noted that of the patient's three children who were living at the time of my examination, one was eccentric to the point of real deficiency and another excitable and otherwise neuropathic.

As for the patient herself, although she had been accounted as fairly well in childhood, yet she began even then to suffer from the nondescript headaches of neurasthenic type which followed her through life, noticeable, as she said, "any time that she stopped to think of them." Even before her marriage she began to exhibit the choreiform movements which formed one of the characteristic features of her case, although when I saw her first she was thirty-one years old, of soft and pleasing face and gentle manner, and her movements were not so obtrusive that they would have been recognized at once, by a casual observer, as abnormal; they seemed rather a sort of caricature of a somewhat affected and coquettish manner. One could easily imagine, after talking with her, what a singular charm she might easily have exerted upon an unwary lover, half a dozen years before. Her speech had a lisping quality and was somewhat spasmodic and drawling. Frequently she would conclude sentences with a prolonged ye—s, accompanied with a slight half laugh, interjected without cause. Her husband said that one of her predecessors in illness had spoken with the same mannerism.

These facts are of obvious importance, because in view of the problem which faces the community, How people should marry so as to avoid the danger of increasing the number of cerebral degenerates, it must be borne distinctly in mind that youthful neurotics are often very attractive, especially to suitors who are themselves neurotic. In such cases it can only be through a wider knowledge of early signs of disease and a recognition of the significance of family tendencies, on the part of both physicians and the laity, that this danger can be averted.

It is not to be doubted, as regards the diagnosis, that this case deserves to be ranked as an example of the affection known as Huntington's chorea. This is a well marked disorder, imminently hereditary, fatally progressive, beginning usually in later adolescence or middle life, and associated regularly with a mental enfeeblement which goes on slowly but surely, although not always to a dementia of high degree.

This deterioration has marks of its own which are fairly characteristic. At first, the mental disorder seems often rather a sort of absent-mindedness or lack of power of concentration than a true dementia. Later, the real defect becomes more prominent, but yet in spite of the gradual decline in power, and the approach of an ever-increasing apathy, attacks of excitement or depression may intervene. And so, in this instance, the first signs of weakness were a lack of initiative, of power of taking responsibility, but associated with a real willingness to help, as a child helps, and, at the same time, with a somewhat childlike appearance of light-heartedness. As time progressed the ineffectiveness became greater, and unreasonableness and lack of insight (as for example with regard to the propriety of having children) became more marked; until finally there came on the serious mental state which eventually led to suicide.

When, in the midst of this career, this unfortunate lady became pregnant for the sixth time, her husband, a man of high character and intelligence, was naturally overcome with horror at the outcome of his own indiscretion.

Dr. Marion, who had long been his friend as well as his physician, was asked if abortion was not justifiable, but decided that it was not, and in this view I entirely concurred. Fortunately, we were able to add that there was no certainty that the husband's fears would be realized, and a fair chance that the child might turn out strong and well, as has so far proved to be the case.

I should have doubted whether there was anything more to be said on the point of the justification of performing abortion, were it not that, a short time ago, having chanced to ask two friends, one a surgeon and the other a physician, both on the staff of the Massachusetts General Hospital, if they could refer me to any literature

* Read as part of the Discussion of Dr. H. E. Marion's paper before the Obstetrical Society of Boston, Dec. 15, 1903.

with relation to the matter, they both said no, but each one added that, not long since, he had been approached by a physician of eminence and reputation who wished to have an abortion done; in one case because the prospective mother was neurotic and should not be expected to care for another child; in the other because the father was a drunkard and had deserted his wife and family. It is well known that ideas of this sort are prevalent amongst the laity, but it was a slight surprise to me that they were as common in the profession as these confidences would indicate. In fact, it is hardly to be doubted that the practice of abortion, even where offspring is obviously very undesirable, is not only a crime before the law, but, historically, a survival of the practice, formerly universal in various countries, of exposing unwelcome children to perish after birth. Possibly, indeed, an advanced civilization may revive this custom as a means of improving a racial or national stock, but a satisfactory proposal looking to this end is not yet in sight. The nearest approach to this of which I know is the scheme brought forward recently by Dr. McKim of New York, according to which the state should put to death such degenerates as come under its authority. Neither of these plans has, as yet, become sufficiently popular to meet with legislative favor, and I do not believe in the right of physicians to take the law into their hands. They may, perhaps, refrain from retarding, by minutes or hours, an obviously approaching and inevitable death, but further than this their privilege does not extend, if indeed so far.

Is it justifiable to recognize the right to life of the so-called "viable" child in utero, and to deny such right to the living being that has not yet made its presence felt? I do not think so, nor does there seem to be any justification for that common distinction, though it is one which is recognized by the laws, I believe, for certain circumstances and in certain states of the Union. An interesting report, bearing on this point, was read before the State Board of Health of Michigan some years ago, in which the frequency of abortion, the present state of the public sentiment, and the barbarous and unreasonable conditions of the then existing statutes was pointed out, and a change urgently demanded.

Can the physician aid in other ways to remedy this unfortunate state of things? Obviously, yes; in the first place by calling urgent attention to the inexorable laws of heredity; next, by standing ready to consult with their patients as to the conditions under which it is right to prevent conception and as to proper means of accomplishing this end.

Is it right that marriage should be entered on with the distinct intention that no children should follow? Under most circumstances, and especially where pride or selfishness cause this custom to prevail, I think we should all say emphatically no. Yet, there are cases, some of which occur to each hearer's mind at once, where no such categorical negative is justified.

As regards means of prevention, it should be clearly understood, I think, that total abstinence is not injurious to the health, or only in the rarest cases. Whether this is the only justifiable means is another matter, and one about which the physician is bound to keep himself liberal, wise, and sympathetic, in the face of the exacting instincts and deeply rooted habits which at times make abstinence well-nigh impossible; though on the other hand it often seems far more difficult than it actually is.

As to the former matter, namely, the laws of heredity, a number of important and interesting questions suggest themselves, with regard to which the opinions of scientific men are by no means uniform.

The importance of unfavorable heredity may be considered, both with relation to the individuals concerned and their immediate families and friends, and also with relation to the community. Here, again, I will begin with the second point.

One often hears it said, and the argument is dwelt upon at great length in the book by Dr. McKim to which I have already referred, entitled, "Heredity and Human Progress," that the civilized races are in great danger of degenerating and being swamped, in consequence of the increasing tide of neurotic and defective citizens forming the outcome of marriages that ought never to have taken place. It is pointed out that insanity increases faster than the population, and neuroses of a lesser grade but belonging to the neuropathic family and therefore in a certain sense an equal menace to society, even faster than insanity, strictly speaking.

In this state of affairs the author just referred to sees no escape from general decay, except in a drastic extinction of the sources of evil, and his therapeutic recommendation is nothing less than that the state should follow the example set by some of the humane societies that care for delinquent cats and dogs, and put to death such persons as come into their hands, who, in their opinion, ought not to become the mothers and fathers of future voters. Analogous remedies have been proposed by others, and extraordinary as such schemes sound, they would, I believe, find many defenders in the community.

If the writer's premises were correct, perhaps we might feel bound to listen more attentively to his proposal, but I for one believe that they are incorrect.

Various reasons have been suggested which indicate that the increase in insanity and the neuroses is more apparent than real. Even if that is not the case, there are very cogent scientific grounds for thinking that the racial stock is not injured to anything like the extent that individual deterioration would suggest; that, in other words, the deleterious effects of such influences as the strain of the present fast mode of living, and the exposure to so many causes of domestic poisoning, especially alcohol, serious as they are for the health and happiness of individuals, are nevertheless to be classed as ac-

quired traits and as such not to be transmitted by inheritance. In the world's history there have been races of heavy drinkers, but no signs of increasing deterioration of racial stock due to that cause. On the other hand, strange as it may appear, it is, fortunately, said to be true that in these races drunkenness has regularly led to temperance, through the influence of natural selection. The germ cells vary constantly, but in obedience to causes which are wholly unknown, and they are not greatly affected, if this opinion is correct, by the diseases, the bad habits, or even the age of the possessors. The evidence is considerable that the children of the aged are as vigorous as those of the young, and that a child conceived during a period of manifest insanity is not more likely to become insane than a child of the same parents conceived before or after this period, and pregnancy is not more dangerous during a period of insanity than it would have been before. Each person must, if he is wise, estimate in advance the good and ill fortunes which are in store for himself and his children, by looking at the past and especially the immediate past, of the house with which he is about to ally himself. It is, probably, not necessary or possible to go back very far, and from that point of view it may be mentioned that even the attempt made by the breeders of cattle to improve their stock through selection have their limitations, and that their beneficial effects cannot be indefinitely extended either in time or in amount. According to Galton's law, the child derives, in general, about one-half from his father and mother, one quarter from his grandparents, one eighth from his great-grandparents, and so on, and while all sorts of surprises must be looked for and may give rise to well-grounded fears and hopes, yet they are hardly to be reckoned with in calculating the actual chances.

Marriages where either party is burdened with an inheritance like that of the subject of this paper ought, of course, never to occur. Neither ought epileptics or insane persons to marry. On the other hand, where it is a question of the milder neuroses and psychoses, or where the severer ones have shown themselves only in preceding generations, more latitude may be allowed. The thing which should decide us, looking upon the matter as we now do, as outsiders and advisers, should be the answer to the question, What gains are to be expected from a given union to offset its dangers? Putting the matter in a somewhat brutal way, one might ask, For what do we breed? Surely not for health and physical qualities alone, or even for health and strength exclusively.

I believe that we have a right to breed for genius, including under that term any quality, such as great common sense, or a fine unselfishness, which makes strongly for the public welfare, even if liable to be associated with a certain amount of bodily and nervous weakness.

I do not believe that genius is a psychosis, and although it may be true that in some cases its existence side by side with the psychoses is more than a coincidence, yet I think that even here its existence may count for infinitely more good than would be necessary to counterbalance the harm done by these psychoses themselves.

A NEW TREATMENT FOR MORPHINE ADDICTION.

BY WILLIAM S. BIRGE, M.D., PROVINCETOWN, MASS.

PROBABLY there has been no subject within the domain of medicine that has baffled the skill of the physician, so far as satisfactory results are concerned, and has likewise taxed the fortitude, endurance, and I might well say every particle of manhood, from a physical, mental and moral standpoint, of the unfortunate patient, as the treatment of morphine and other drug addictions.

The treatment of morphine addiction by the gradual reduction method means a period of weeks of the most agonizing form of slow torture that lies within the power of man to inflict upon his fellow; while upon the other hand the sudden withdrawal of so powerful a narcotic has always associated with it, aside from the very unpleasant nervous and mental manifestations, the danger of sudden collapse.

In perusing the medical literature on the subject of morphine addiction any fair minded physician cannot help but feel that the progress made in this particular line of work has been almost *nil*, and that the treatment of to-day, as conducted in the best known institutions throughout the country, remains much the same as it was a quarter of a century ago.

When one considers the many relapses that have followed the treatment of these unfortunates, he is almost led to feel that there is more truth than poetry in the statement that I have often heard advocated by physicians, men of brilliant minds and good standing in their profession, "Once an habitué of morphine, always one."

That the statement is overdrawn there is no doubt, but there is no question, in following up the so-called cures, that at least fifty per cent do relapse, and that, even after, sometimes, two or three attempts have been made, upon the part of the patient, to throw off the chains that have bound him so securely. In these cases the relapses occur most often where the patient has been practically free from the use of the drug for a longer or shorter period.

During an experience of several years in conducting a small sanitorium for nervous invalids I have refused to consider the acceptance of these cases, feeling that the best known methods of treatment thus far have been so far from satisfactory that I could not conscientiously undertake it.

During the past summer my attention was called to a new method of treatment that was being used, it was claimed, with remarkable success, at a private institution in one of the Southern states. Before entering into any direct cor-

respondence I made inquiries and ascertained, from some of the foremost physicians in that section, that the treatment was all that it was represented to be, and that several private institutions and one public hospital in the city had investigated the method, and had adopted it in the treatment of their own cases. I then entered into direct correspondence with the superintendent and physician in charge of the institution that claimed the discovery of this new method. I was cordially invited to visit the sanitorium and investigate fully the method of treatment, remedies used, etc. Later on, in the fall, I took advantage of the opportunity that presented itself, and spent over three weeks in daily observation of the patients under treatment, and I must say that the most skeptical could not fail to be convinced of its efficacy in such cases.

One of the most remarkable things connected with the treatment was the fact that the length of time of the addiction, or the amount of the drug used, whether two grains or fifty, made no difference with the success of the treatment, the antidotal and eliminative effects being equally efficacious, and the time required for treatment no longer.

It seems like an improbable statement to make, but it is a fact, nevertheless, and I saw it exemplified in numerous cases, that when the system of the patient is put in proper condition by a few days' (three to five) preparatory treatment, seventy-two hours suffices for the taking away entirely of the drug, and its complete elimination from the system, and this, too, without shock to the system, and without suffering or discomfort.

Among the cases that I saw treated were four physicians. We will all acknowledge, from experience, that physicians generally make bad patients, and all of these men acknowledged that they felt no pain or discomfort, and one of them returned to his home and practice the third day after treatment, making just one week from the day that he entered the institution until he left it, as he said, " A well man." He was taking twenty grains of morphine, and five grains of cocaine daily.

In none of the cases was there nausea or vomiting, and in none any persistent diarrhea. The food was taken at regular intervals, and a fair amount of sleep enjoyed every night.

The method of treatment is as follows:

A careful physical examination is first made of the patient. The quantity of drug used is still continued until time for active, or seventy-two hour treatment, begins, but if patient is using alcoholic stimulants of any kind they are discontinued or left off as soon as possible. The active treatment should not begin until three days after patient has entirely discontinued the use of alcoholics. A dose of 10 gr. of calomel is given at bed time, followed in the morning by a full dose of epsom salts. This should start up the secretions freely, and completely unload the bowels. If this has not been done satisfactorily give 5 gr. of calomel the second night, following as before by the dose of salts in the morning. In addition to the above a Turkish bath should be taken at least every second day during the preparatory treatment. When the time for the active treatment comes the usual dose of morphine is taken up to noon of that day when it is dropped for good and all. At two o'clock 5 drops of a specially prepared solution of mandragorin is given hypodermically, together with one-eighth of a grain of pilocarpin. This dose is repeated every two hours. If the symptoms of abstinence manifest themselves from lack of the morphine, the dose of the mandragorin may be increased until comfort ensues, even if 15, or sometimes even 20 drops of the solution are taken. The dose of pilocarpin remains the same until the patient is brought into a profuse perspiration, and then sufficient quantity should be given to keep the skin in a continual moisture. Usually as long as the patient perspires freely he is perfectly comfortable. As I have said before, any symptoms of abstinence that may arise can be relieved by the mandragorin. The pulse which was stimulated and quick before beginning the treatment usually becomes slower, but soft, full and regular. The above treatment is continued during the seventy-two hours with the exception of the morning dose at four o'clock which is omitted, that is, there is no medicine given between the hours of two and six in the morning. The patient is usually quiet and sleeping at this time and it is not needed. At the beginning of the second day's treatment, or before, if there is any weakness of the heart's action, a dose of one twentieth of a grain of strychnia nitrate and one eighth of a grain of sparteine is added to the hypodermic solution and given every two or four hours during the remainder of the treatment. If, as occasionally happens, the patient becomes extremely restless during the treatment a hypodermic of one-half grain of codeine, or one quarter of morphine may be given. This will at once quiet all restlessness and can do no harm, for the secretions are so active that it would be worked out of the system in a few hours. At the end of forty-eight hours the antidotal and eliminative effect of the remedies are usually complete, and there is not a vestige of morphine left in the system. This is plainly demonstrated by the fact that a dose of one eighth or one quarter grain of morphine would produce the same effect as it did before the addiction had been formed.

During the treatment light food should be given at regular intervals. It is always taken and well assimilated, the patient even craving a larger amount of nourishment than it is well for him to take for fear of overloading the stomach and causing indigestion.

After the completion of the active treatment the patient should take the hot and cold shower bath, but not enter the hot air or vapor bath cabinet. The strychnia nitrate and sparteine should be given hypodermically for three or four days afterwards, and a good nerve tonic and

sedative given for several weeks. An excellent preparation in the form of an elixir was given the patients I saw under treatment. It was composed of:

℞ Lactucarium, elix.; celery, elix.; hops, elix.; gentian, f. e.; wild cherry, f. e.; quassia, f. e.; sparteine, sulph.; ammonia mur.; hydrastis, mur.; strophanthus, tinct.; brew; mandragora offi.; ext. Signa: One teaspoonful in fourth glass of water before meals and on retiring.

In giving the mandragorin it will be found that a blonde is more susceptible to its effects than a brunette. This is common with all mydriatics, in consequence of which it is well to begin the treatment with the smallest dose mentioned, viz.: 5 drops. If the bowels should be too loose after treatment, which is not common, they are generally easily controlled by bismuth subgallate.

If after treatment the patient complains of a nervous feeling of unrest, or fidgets, one of the best remedies at our command is an occasional dose of cicutin (alk.) one-sixtieth of a grain given hypodermically.

The number of cases I saw treated during the three weeks of my stay was eleven. Of this number all went through the treatment without any suffering or discomfort to speak of. There was no shock to the nervous system, and the day following the period of active treatment they were all able to get up, dress themselves, and walk about the grounds. Some of the cases that were complete physical wrecks on entering the institution remained for a few weeks to regain their strength, others remained but a few days and returned to their homes, and resumed their occupation. Out of 50 cases that had received treatment and left the institution from three to five months previous there had been but four relapses. This certainly is a good showing, and I doubt if there is any other method of treatment that can produce like results.

There is no question but that mandragora is the only remedy thus far discovered that will completely antidote morphine, and eliminate it from the system without shock, pain or discomfort.

Mandragora officinalis is not a new remedy, but rather a very old one, and was supposed by the ancients to possess magical virtues, and this superstition is still cherished in some parts of Europe regarding its use. It seems to be isomeric with atropin, but is not converted into it by alkalies. "The sulphate and the hydrochloride or crystalline are deliquescent. A second alkaloid in much smaller amount was also extracted, of which the gold and platinum double chloride were formed. Both alkaloids had a mydriatic action."

The *United States Dispensary*, fifteenth edition, 1888, says "Mandragora is unknown as a remedy in the United States." "It was also used by the ancients as an anesthetic agent before surgical operations."

The therapeutic action and the physiological effects of mandragora are somewhat similar to that of morphine when combined with atropin, but without the unpleasant effect of that combination of drugs. Mandragora will not diminish the appetite, disturb the stomach, or constipate.

Mandragora is also a vigorous aphrodisiac, quickly restoring the weakened sexual powers of the morphine habitué; this action of the drug is so marked that its effect may be observed even though the use of morphine be still continued.

Mandragora is the nearest thing to a specific we have in the treatment of dipsomania, and almost any case of delirium tremens may be aborted by the proper administration of this remedy.

In giving this paper to the medical profession I do so not from a desire to exploit any particular remedy or method of treatment, but from a sense of duty that I owe my brother practitioners, and a desire to help suffering humanity.

That there is a gentle cure for the morphine and other drug addictions without shock to the system, suffering, or even marked discomfort is an established fact.

That this method of treatment need not extend over a long period but, under ordinary circumstances, may be accomplished in from one to three weeks is also proven.

That no bad results have ever followed this method of treatment or deaths resulted therefrom is shown by the statistics kept in the treatment of over one thousand cases in the past three years at the Homestead Sanitarium in Memphis.

My own observation and experience show that the treatment of any case of drug addiction should be in a hospital or sanitorium.

That any physician treating a drug patient during the period of active treatment should see that patient personally every two hours, and always be within easy call. This is imperative, not from any danger to the patient in the method of treatment, but that the action of the medicines may be closely observed, and the dosage increased or diminished according to the condition and comfort of the patient. If, for instance, the patient should begin to experience any discomfort, he should be relieved at once by an increase of the mandragorin; if this should not be done he would, of course, get into an exceedingly nervous condition, lose faith in the treatment and retard his own recovery. To gain the confidence of the profession in this method of treatment it should be open to the fullest investigation of any reputable physicians, allowing them, if they so desire, to be present during the entire period of active treatment of any patients they might choose to bring for treatment.

Clinical Department.

CONCERNING GERMAN MEASLES.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

I HAVE been seeing lately a number of cases — some twenty-five or more, — of a mild eruptive disease which I have called Rötheln or German

measles. Having previously been somewhat skeptical as to the separate existence of this disease, and having expressed this skepticism in the study [1] of a mild epidemic of measles occurring in 1889, my reasons for a change of view are here noted. I am especially moved to state these reasons, for I find that some of my confreres in Boston are still skeptical of the separate existence of this disease.

The cases I refer to are characterized by a macular measles-like rash, suddenly appearing over the whole body, mostly in children, occasionally in adults, with little or no accompanying symptoms. Only in exceptional instances are there any prodromal symptoms, slight malaise for a few hours. The rash is the first thing to attract attention. In a very small minority there is slight conjunctival redness, while cough and other catarrhal symptoms are practically absent. The temperature is either normal, or slightly elevated to 99° F., rarely as high as 100° F. With a very pronounced rash, I have several times found the temperature 98.6°. In one case I took the temperature five times during the whole period of the rash, which lasted twenty-four hours, and found the highest point reached was 98.8°. The rash in this case was profuse. The child felt perfectly well through it all. The rash generally disappears in forty-eight hours, and I have known it to last only five or six hours. A rash lasting only one day is common. While the rash resembles that of measles very closely, it sometimes assumes in places, especially on the face, a diffuse erythematous character, causing us some anxiety on the score of scarlet fever. I have seen a rash that was at first macular, become diffuse over a considerable part of the body. These cases are undoubtedly at times mistaken for scarlet fever. In all doubtful cases, where the macular character of the eruption is not clear, it is better to err on the safe side and call them scarlet fever. In five cases I have seen some swelling of the face, especially about the eyes, coincident with the diffuse erythema there, the body at the same time being covered with the measles-like eruption.

Swelling of the glands in the neck and a very slight sore throat occurred in a few, both being symptoms which may occur in measles. The tongue never suggests scarlet fever in its appearance.

The description I have given differs from the description of true measles as little as the mild cases of scarlet fever with their transitory rash and absence of symptoms differ from severe cases of scarlet fever. Cases of measles exactly resembling the German measles are found in epidemics of true measles. In other words, as I said in 1890, "The symptomatology of Rötheln is not distinct from that of measles." There are several reasons, however, which lead me to think that there is a distinct disease, which is called German measles or Rötheln.

In an epidemic where there are cases of mild measles we find many, generally the majority, where the cases are characteristic, or even severe. In none of the cases I have reported, have I found characteristic cases of measles to be communicated by them. All the cases where the exposure has been from these cases are of the same very mild type.

A second and most important fact is that German measles attacks those who have had measles before and those who have not, and it is not any more severe among those who have not had measles. It is true that second attacks of true measles undoubtedly do occur, but it is hard to believe that second attacks may be so common, that, as is the case now, previous attacks afford no protection at all from this eruptive disease.

A third argument, and one of considerable force, is that the stage of incubation is generally longer in German measles than in measles, it being ten to fourteen days in measles and generally twelve to twenty-one days in German measles.

In nine of my cases where I have been able to compute this stage, I have found it as follows: Thirteen days, 2 cases; fifteen days, 1 case; seventeen days, 2 cases; nineteen days, 2 cases; twenty days, 1 case; twenty-one days, 1 case.

Another fact is pertinent, namely, that there are more adults attacked, than in epidemics of true measles. Why? Adults rarely have measles, being protected by previous cases in their youth. Adults more frequently have German measles not having had in this vicinity at least as much exposure to that disease in their youth, although they are certainly much less susceptible than children.

A final point is that the contagiousness of German measles while marked is not so extreme as is that of true measles. It is rare for other children in a family to escape if one comes down with measles, while such immunity in one or more members is not uncommon in German measles.

[1] An epidemic of measles with remarks on Rötheln. Arch. of Pediatrics Vol. VII p. 269 April, 1890.

Medical Progress.

PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 14, page 380.)

DANGERS OF DISINFECTION BY MEANS OF CORROSIVE SUBLIMATE.

BERTARELLI [25] gives an account of the opinions which, at various times since Guttmann and Merke first called attention to the subject, have been expressed with respect to the possible dangers to health that might arise from the metallic mercury due to the decomposition of corrosive sublimate (mercuric chloride) when employed in solution for the purposes of disinfection. Among others, the views of Esmarch, Morner and Sjoqwist are cited and the observations of Krupin and Bordoni-Uffreduzzi on the health of members of the

[25] Zeitschrift fur Hygiene, Vol. xlii, 1903, p. 553.

staff engaged in the work of disinfection, where corrosive sublimate was in use, are discussed. In the presence of some conflict of opinions, the author has undertaken, in the course of 1900 and 1901, a series of investigations into this subject at Turin, where an excellent opportunity was afforded for the enquiry, as it has been the practice to employ for many years past a very concentrated solution of the mercurial salt (ten per mille) for disinfecting purposes. His experiments included both persons who inhabited the disinfected dwellings and those who were habitually engaged in the work of disinfection. The urine and the excreta were systematically collected and tested, and small special chambers of wood and cement were constructed for observations upon animals. The walls of these chambers were frequently well washed with the solution, and live mice were then placed in them with such arrangements for feeding as to avoid all possibilities of direct contact of the food with the walls and floors. A full account is given of the methods of testing and of the extent and duration of the experiments. The author likewise examined the air-currents passing through chambers in which the corrosive sublimate had previously been used as spray, but in no case was it possible to demonstrate the faintest traces of sublimate in the water employed for washing the air. As the general result of his investigations, he states that this substance may be employed with the utmost confidence for disinfection, and that, with proper precautions, such as are always enjoined, even the officials, who are constantly engaged in the work, run no risks of mercurial poisoning.

Water Supply and Sewerage.

Bacterium coli as an indicator of fecal pollution. (Petruschky and Pusch.)

Weissenfels published in the year 1900 the results of his investigations,[27] which cast doubts upon the practical value of the coli-test, since this bacterium was found to be present in all samples of water. The authors controvert this opinion and state, as the result of very numerous experiments, that the ubiquity of bacterium coli can certainly not be established. In the case of a pure spring water, it was sometimes not possible to cultivate it from quantities even of three-quarters of a litre. In highly polluted waters, as, for instance, in river water, it was always present, and its relative abundance furnishes a good test of the degree of the impurity. The fluctuations in the extent of coli-pollution in surface waters were so great that the variations in a series of samples were more than a million-fold, and it was possible to establish four ascending degrees in a scale of impurity, which were each ten times that of the lower one. No increase took place in the coli-contents of slightly impure water, even when kept for a long time, if stored in the ice-chamber, and therefore samples sent up in the winter-time can safely be dealt with, notwithstanding the interval that may have elapsed since they were procured. The methods of conducting so-called titration-tests for the bacterium coli are described, and the results of numerous experiments conducted by Dr. Pusch are set forth in a series of tables.

[27] Zeitschrift fur Hygiene, Vol. xliii, 1903, p. 304.

Sewage purification by means of intermittent irrigation.

Oesten[28] states the problem of the purification of town sewage as a twofold one — first, the removal of the fouled water in such a way as to avoid all objections from the sanitary point of view, and, secondly, the extraction from it of the valuable manurial constituents in such a form as to be most serviceable for the production of new organisms; while a third condition may be added, namely, that this should be done with the smallest expense and on the least possible extent of ground. The author states that the modern tendency is at all hazards to satisfy this third set of conditions. The long-established practice of agricultural irrigation is being pushed into the background, though the results obtained thereby are in the main satisfactory. That system is, from the present aspect, too costly, both in regard to area, management and working expenses. Owing to this fact efforts are continually being made to obtain equally good results at a less outlay. This has led in the past to the introduction of the various precipitation processes, none of which, however, fully satisfy the conditions, and more recently to the adoption of the so-called biological or oxidation processes; but these last, while they fulfil the first of the requirements, are conspicuously inefficient as respects the recovery of the manurial ingredients. The author discusses the main principles on which the biological treatment of sewage is founded, and shows that a highly porous mass must be filled and emptied alternately with air and sewage water. By reference to diagrams, the best method of obtaining parallel results by means of a system of intermittent irrigation on a restricted area is described. In order to carry out the plan efficiently, arrangements must be made for giving rest to certain plots for a long period (not less than a year), during which time the land must be used for agriculture. Reference is further made to the possibility of utilizing the effluent or subsoil drainage-water, which, although clear and colorless, has still a certain proportion of organic matters and salts in solution. This water may be stored up in ponds for breeding fish, and the effluent will speedily become available for this purpose, owing to the luxuriant vegetation and the abundant supply of minute animalculæ which it is capable of producing.

The existence of nitrites in drinking-water.

Dienert[29] does not regard the presence of nitrites in water as necessarily a proof of serious contamination. As the results of observations and analyses of different waters he concludes:

[28] Gesundheits-Ingenieur, May 31, 1903, p. 242.
[29] Rev. d'Hygiene, April, 1903, p. 301.

(1) That nitrites may be found in the subsoil independently of any contamination. (2) That contamination of water is not always accompanied by the formation of nitrites. (3) Certain precautions are necessary in examining for nitrites in water, since if the temperature of the air is raised during the transportation of the sample, nitrites may be found which did not exist in the water when it was collected. (4) According to the conclusions of Spiegel, any opinion as to the quality of a sample of water should be made independently of knowledge as to the existence of nitrites.

SUPERVISION OF WATER SUPPLIES AND TYPHOID FEVER.

Fuller[30] furnishes the following suggestive figures showing the death-rate from typhoid fever in the principal cities of two populous states. In one of these states careful supervision of public water supplies is exercised under legal authority, by the State Board of Health, and in the other, no such supervision exists.

Deaths per 100,000 *inhabitants from typhoid fever in certain cities for the years* 1898–99 and 1900.

MASSACHUSETTS		PENNSYLVANIA	
Boston	30	Pittsburg	108
New Bedford	30	Alleghany	86
Springfield	26	Johnstown	83
Lawrence	25	York	83
Taunton	25	Chester	64
Brockton	24	Lancaster	59
Chelsea	24	Philadelphia	54
Salem	23	Mackiesport	53
Fitchburg	21	Reading	50
Lowell	21	Allentown	49
Lynn	20	Harrisburg	41
Newton	20	Altoona	33
Cambridge	18	Wilkesbarre	29
Worcester	18	Erie	28
Fall River	15	Scranton	23

(The mean death rate of the whole state of Massachusetts from typhoid fever in the five-year period, 1896–1900, was only 24 per 100,000, and the highest rate in any one of its thirty-three cities in that period, was only 39 per 100,000, and this in one of the smallest cities.)

ENGLISH SANITARY LEGISLATION OF 1903.

The Parliamentary Session of 1903 was not very fruitful in the enactment of laws for the protection of the public health and safety. The only acts of general importance of this character were the Motor Car Act (3 Edward 7, chap. 36) which provides protection against reckless driving of automobiles, and for their registration and the licensing of drivers of such vehicles, the Housing of the Working Classes Act (3 Edward 7, chap. 39) which facilitates the adoption of the existing acts by local authorities, and makes it possible to close any house, which in the opinion of the Council is "not reasonably capable of being made fit for human habitation" or "is in such a state that its occupation should be immediately discontinued." The Employment of Children Act (3 Edward 7, chap. 45) provides for all children, or for boys and girls separately, and with respect to occupations:

(*a*) The age below which employment is illegal.

(*b*) The hours between which employment is illegal.

(*c*) The number of daily and weekly hours beyond which employment is illegal.

It also prohibits absolutely, or permits under conditions, employment of children in certain occupations.

It provides that local authorities may prohibit or regulate street trading by persons under sixteen years of age. With reference to prospective legislation, according to the *Sanitary Record Diary* for 1904, it appears probable that the General Public Health Act will be taken in hand at the present session of Parliament, and that the questions of death certification and of vaccination may come in for a share of discussion. The Conscientious Objections (Vaccination) Act expires Dec. 31, 1904, the time having been extended one year at the last session. River pollution, and the regulation of the trade in the cultivation of oysters also are likely to be taken up in consequence of recommendations which have been made regarding them.

A UNIFORM STANDARD FOR BOARDS OF HEALTH.

The *Journal of the American Medical Association*[36] calls attention to the need of uniformity among the local boards of health throughout the United States, in regard to the matter of reporting infectious diseases, isolation and subsequent disinfection.

Inquiry of the health authorities of the principal cities shows wide diversities of opinion and practice as to what diseases should be considered notifiable, and also as to what measures should be taken to prevent their spread. Philadelphia, for example, insists on the reporting of chickenpox, since many cases of smallpox are thus detected. Baltimore, Salt Lake City and St. Louis are the only large cities which require the reporting of both measles and whooping cough.

A difference also exists as to what diseases should require the use of placards.

In Salt Lake City isolation is applied to a greater number of diseases than in any other city.

In one city "the work of the health department in disinfecting with formaldehyde has been exceedingly successful," while another city reports 'all forms of formaldehyde disinfection as a delusion and a snare."

It is exceedingly desirable that the work of local health authorities should be made more uniform, and that these diversities in practice should be brought to the attention of the National sanitary association for discussion and action.

VITAL STATISTICS.

VITAL STATISTICS OF ITALY IN 1901.

Bodio[31] reports the following for the year 1901, for an estimated population in that year of 32,574,563. Marriage rate 7.21 per 1,000 (persons married 14.42 per 1,000). Birth rate, 32.47. Death rate, 21.95.

[30] Journal of Mass. Assoc. of Boards of Health. Vol. 14, 1904, p. 12.

[36] Editorial, Feb. 6, 1904.

[31] Movimento della popolazione nell' anno, 1901. Roma, 1903.

Comparing the three years 1882–84 with the three years 1899–1901, the marriage rate had declined from an average of 8.05 per 1,000 in the former period to 7.24 in the latter. The birth rate from 37.80 to 33.11, and the death rate from 27.36 to 22.54. The birth rate exceeded the death rate in the former period by 38%, and in the latter by 47%, thus showing an improvement in the natural increase of the population. Illegitimate births had diminished from 7.5% of all births in 1882 to 5.8% in 1901. About one third of this class of births had been legitimized by subsequent marriage of the parents or by royal decree during the last three years. The statistics of causes of death show a marked decrease in nearly all of the infectious diseases in the past fifteen years. The deaths from small-pox had declined from 549 per million inhabitants in 1887, to 104 per million in 1901. Measles from 803 per million to 171 in the same time. Scarlet fever, from 494 to 36; typhoid fever, from 939 to 361; diphtheria, from 952 to 167; whooping cough, from 376 to 212; malarial fevers, from 710 to 416; erysipelas, from 178 to 79; malignant pustule, from 24 to 10; pellagra, from 125 to 94; dysentery, from 212 to 2; puerperal fever, from 85 to 31.

In very few countries do the figures show such marked changes in so short a period.

There was an increase in the deaths from cancer from 427 deaths per million to 526; phthisis, from 1,074 to 1,112; pneumonia, 2,154 to 2,288; kidney diseases, 255 to 376, and suicide, 49 to 62 per million.

SUICIDES IN AMERICAN CITIES.

Hoffman [32] gives the figures of the suicides in fifty American cities with a population of fourteen and one-half millions. The years in question were the ten years 1892–1901, and the single year, 1902. The cities having the highest rate in the ten years were: St. Louis, with 25.7 per 100,000 population; Hoboken, N. J., 24.6 per 100,000; Chicago, 23.4; Oakland, Cal., 22.5; New York City, 21.2, and Milwaukee, 20.1; Cincinnati, 18.5; Newark, N. J., 17.9; Brooklyn, N. Y., 16.2; Boston, 15.9; New Orleans, 15.5. Of the fifteen cities having the lowest rate eleven were Massachusetts cities as follows: Worcester, 9.0; Lawrence, 8.8; Chelsea, 8.4; Fitchburg, 8.2; Cambridge, 8.2; Lynn, 6.6; Holyoke, 6.2; Somerville, 5.8; New Bedford, 4.6; Newton, 2.7, and Fall River, 2.7; the suicide rate for these fifty cities had increased from 12.0 per 100,000 population in 1890, to 17.3 in 1897 and 1898, and then decreased slightly to 17.0 in 1902.

By nationalities the rate was lowest among the Irish, 6.1; among native Americans, 6.8; Germans, 19.3; French, 22.0.

REDUCTION IN INFANT MORTALITY.

Dr. R. G. Freeman [33] attributes the striking decline in infant mortality to many agencies. The general adoption of pasteurization and sterilization of milk for infant feeding is by far the most important, and applies not only to New York City, but to the whole United States. Other agencies are improved city administration, milk inspection, the Straus Milk Charity, the fresh air work of St. John's Guild, cleaner streets, asphalt pavements, new parks, playgrounds and recreation piers, improved tenements and the use of diphtheria antitoxin.

GENERAL DEATH-RATES PER THOUSAND LIVING IN DIFFERENT COUNTRIES.

Twenty-five years' average (1876–1900) and in 1901. [34]

	England and Wales.	Scotland.	Ireland.	Denmark.	Norway.	Sweden.	Austria.	Hungary.	Switzerland.	Germany.	Holland.	Belgium.	France.	Spain.	Italy.
Average in 25 years, (1876-1900) ..	16.9	19.2	18.2	18.3	16.6	17.0	28.6	32.3	20.6	24.2	20.3	20.1	21.9	30.3	26.5
1901	19.1	17.9	17.8	15.8	14.9	16.0	24.2	25.4	18.0	20.7	17.2	17.1	20.1	27.6	22.0

The highest death rate in any year was 37.4 per thousand in Hungary in 1878, and the lowest was 14.9 in Norway in 1901.

DEATH-RATES PER MILLION LIVING FROM DIFFERENT INFECTIOUS DISEASES AND FROM CANCER.

In England and London in 1901, and in Germany and in Berlin, Paris, Hamburg, and Munich in 1900.

DISEASES.	1901. England.	1901. London.	1900. Germany.	1900. Berlin.	1901. Paris.	1900. Hamburg.	1900. Munich.
Smallpox	10	5	9	0	105	0	0
Measles	276	434	228	279	351	142	838
Scarlet Fever	133	113	242	325	76	129	10
Whooping cough	313	355	342	197	81	146	102
Diphtheria	273	285	381	284	134	163	224
Cerebrospinal Meningitis .	2	4	5	3	—	—	—
Typhoid Fever	155	116	111	66	391	33	54
Diarrheal Diseases	924	862	3,381	3,268	1,137	2,475	6,189
Puerperal Fever	64	48	51	58	—	75	40
Pneumonia	1,147	1,333	1,384	1,413	1,790	1,206	262
Phthisis Pul.	1,264	1,642	2,023	2,373	4,154	2,020	3,170
Cancer	842	939	710	1,092	1,151	1,190	1,190

[32] The Spectator, Aug. 27, 1903. [33] Medical News, New York, Sept. 5, 1903. [34] Registrar General's Report, England.

The figures for cerebrospinal meningitis are not given in the returns of Paris, Munich, and Hamburg, and those of puerperal fever are not given in the Paris returns, hence the absence of figures for these diseases in the foregoing table does not imply the absence of the diseases in the places named.

PHYSICIANS, DENTISTS AND APOTHECARIES IN GERMANY.

Dr. Wehmer[35] gives the following figures for the year 1901:

Population of Germany in 1901: 34,463,377.

Number of physicians: 16,500, or 479 per million inhabitants.

Number of dentists: 1,024, or 29 per million inhabitants.

Number of apothecaries: 3,178, or 92 per million inhabitants.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOM STORER, M.D., SECRETARY.

MEETING of Dec. 15, 1903, the President, DR. J. B. SWIFT, in the chair.

DR. H. E. MARION read a paper entitled

A MANY-PHASED CASE OF CHOREA.*

DR. G. H. TUTTLE: This woman was a patient in the McLean Hospital for two weeks in the spring of 1902, and a diagnosis of Huntington's chorea was made. She represented the fourth generation after the appearance of adult chorea in the family. Her paternal great-grandmother, grandmother, a grandaunt, and three paternal aunts were choreic. Her father, who was described as of a nervous, high-strung temperament, full of energy and apt to be impetuous, was lost at sea at the age of thirty-five, so that this may be no exception to Huntington's statement that if one member of a family escaped, his descendants were ever afterwards free.

The choreic movements began at the age of twenty-eight and had existed about eight years at the time of admission. They appeared first in the face and were for a long time unnoticed by her. Even when they had become general, she appeared to have little appreciation of them. She spoke rather quickly, hurrying as she proceeded and finishing each sentence with a sharp inspiration. This was usually followed by a little laugh, which gave the appearance of a greater degree of dementia than was really present.

In general, it may be said that the choreic movements were entirely arhythmic and were irregular and confined within certain well defined limits. They were not so severe and violent as are sometimes seen in these cases, and she required no special precaution to keep her from injuring herself. They were, to a certain extent, under control of the will.

The movements of the face presented the greatest range, the most frequent being spasm of the *risorius*; at the same time the upper lip was raised. Very frequently she contorted her mouth, pursing up her lips and twisting them to right and left, and with this there was a contraction of the *corrugator supercilii*. At times she blinked. The head occasionally was pulled over to the right. Now and then the neck and upper part of the trunk were the seat of a clonic spasm. The legs would be flexed at the knee and then extended and kicked about irregularly. Occasionally there was a complete turning of the body at the hips, so that she would turn over in bed, pulling the clothes with her. The arms were least involved, though they were occasionally thrown about at random. She thought she had no difficulty in walking, but her gait, to say the least, was irregular and uncertain.

Voluntary movements were not very much interfered with. She could approximate the finger tips with a fair degree of accuracy and could pick up things perfectly well. The tongue was protruded quickly, but was fairly steady. To test her control, the pulse was taken for two minutes, during which time she was practically free from the movements, even her face being at rest most of the time. The nurse reported that when sleeping soundly they ceased entirely, but when partially awake they began again. Her greatest complaint was a severe frontal headache, which she had had for more than two years.

Her mental condition was one of moderate dementia, with marked depression of spirits. She had relinquished her household accounts and duties at least a year before admission because of illness and to avoid mental stress, and it was difficult to judge of her administrative capacity. She presented no exhilaration, no hallucinations or delusions. There was no gross memory defect, but there was a childishness in her conversation and her manner aside from the frequent laugh. She did not comprehend situations and their significance, as was shown at the time of the illness and death of her children. She was careless of exposure in the presence of the physicians and would get up and follow them out on the ward in her night-dress. In general, she showed a decided lack of perception of the fitness of things. She had suffered from the intense headaches for two years, and in a degree she appreciated her position and often told the nurse that if she failed of relief at the hospital, she had better die. She had reason for her depression and her suicide was the logical outcome.

Huntington, in reporting his cases in 1872, called attention to the occurrence of mental symptoms and the tendency to suicide. Others have spoken of irritability, violent outbursts of anger, suspicions, delusions of persecution, and exaggerated ideas: but these are merely incidental to, and symptomatic of, a progressive dementia, and are found also in senile dementia and general paralysis. In the later stages these patients show a marked dementia, with loss of memory and a general loss of intellect. The mental symptoms usually appear years after the onset of the choreic movements, though occasionally they are coincident with them. Unless from suicide or intercurrent disease, death comes from exhaustion in from ten to twenty years.

While the disease bears the name of Huntington, its essential features were given by Waters thirty years before, and to the present time little has been added to his description; that it is hereditary, that it rarely appears before adult life or after forty-five years, that it is incurable, and that it induces dementia.

Few careful autopsies have been reported and there is no uniformity in the findings. There is no doubt that various lesions may cause choreic movements if the process is a diffuse one — and perhaps some so reported are not cases of Huntington's chorea. The autopsies of Dana (1895)[1], Clarke (1897)[2], Collins (1898)[3], and Good (1900)[4] agree substantially that it is a degenerative and not an inflammatory process; that the

[35] Medicinal Kalender, Berlin, 1902.

* See page 397 of the JOURNAL.

[1] Journ. Nerv. & Ment. Dis., September, 1895, p. 565.
[2] Brain, Vol. 20, p. 22.
[3] Am. Journ. Med. Sc., Vol. 116, p. 275.
[4] Am. Journ. of Ins., Vol. 57, p. 21.

chief changes are an atrophy of the cerebral cortex with a degeneration of the ganglion cells, especially marked in the motor areas and in the frontal lobes, with an increase of neuroglia, most conspicuous where the cell degeneration is most marked; and an enlargement of the perivascular spaces, — a parenchymatous degeneration of the cerebral cortex.

Dr. Marion: As to the question when this patient first developed chorea, my impression is that it was even in childhood; that is to say, her peculiarly silly laugh and manner of saying "Yess-ss" with a rising inflection. While the second boy was certainly rather idiotic in appearance, he has improved vastly since some adenoids were removed.

Dr. D. H. Fuller: This patient came under my observation at the Adams Nervine Asylum two years before her death. Her cause for coming was entirely the suffering from her headaches. She told me that these had existed from early childhood without relief from any treatment. While at the hospital these headaches were practically constant. Her choreic movements were very little in evidence. Her hopelessness of ever getting relief from these headaches was the great cause of her depression. With us she was never suicidal. When questioned she would always reply that she was in pain, but at times it was much more severe than at others. Her silly laugh and tendency to make irrelevant remarks were the only symptoms that suggested impairment of her mental powers.

Dr. Edw. Cowles: This is a case of quite unique interest — the only one that has occurred in my personal knowledge. I have little to add to what Dr. Tuttle has said. The question of heredity is of great interest. It seems to me that in psychiatry, with more modern methods of study, less stress is being laid on heredity as an essential cause of insanity. Twenty years ago this was much insisted upon. Even the classification of mental diseases was fundamentally based upon heredity. As the symptom groups are being more carefully studied, we are coming to see that there are not so many forms of mental disease as was once thought, and most of these may occur without a hereditary cause. Heredity has, of course, some value as a predisposing condition, but the necessity of insanity following as a consequence of the neuropathic condition does not seem to be the case, except in a class which are distinctly neuropathic — the paranoias — and these are much less numerous than was supposed a few years ago. Looking at this question from the point of mental hygiene, it can be said that we can offer the hope that patients of neuropathic heredity are susceptible of improvement, and care in bringing them up may avert these troubles. This view is one that should be carefully considered by the profession. I have no doubt that many cases of insanity are induced by the fear of becoming insane. Too much is made of heredity. The laity have come to think of heredity as did the profession twenty years ago, and this is the cause of a great deal of unnecessary suffering.

Dr. J. G. Blake: While the process of lifting up is going on, the profession can do a certain amount of missionary work by discouraging marriage in cases in which there is an inherited tendency to disease by pointing out its dangers. We can create a public sentiment, which in time may produce laws to protect itself against the diseases due to the marriage of persons having diseases liable to be transmitted.

Dr. Edward Reynolds: There is extant a society in which human breeding is regulated by law, or, rather, custom. In a personal communication Lumholtz, the Australian traveler, tells me that the Australian blacks have developed a system to that end. When a boy reaches puberty he is brought before a council of the elders, and if exceptionally healthy and vigorous, he is accepted as a breeder. If, on the contrary, he is in any way deficient, an artificial hypospadias is made with a sharp clam shell, with the result that he cannot procreate. Such a practice cannot but tend to raise the average of the race.

Recent Literature.

A System of Clinical Medicine. Dealing with the Diagnosis, Prognosis, and Treatment of Disease. For Students and Practitioners. By Thomas D. Savill, M.D. (Lond.), Physician to the West End Hospital for Diseases of the Nervous System; Physician to St. John's Hospital for Diseases of the Skin, London; formerly Medical Superintendent of the Paddington Infirmary; Medical Officer of the Paddington Workhouse, etc. Vol. I. Illustrated. London: J. & A. Churchill. Philadelphia: P. Blakiston's Sons & Co. 1903.

The volume before us, which is one of two, is of more than usual interest because it offers a new point of view in the presentation of the general subject of clinical medicine. We have grown accustomed to the ordinary method of textbook writing, consisting essentially in a more or less complete description of individual diseases with relatively slight attention to the underlying principles governing diagnosis. There is a strong tendency in the ordinary textbook to present a series of facts simply, rather than to appeal to the reasoning faculty of the student.

Dr. Savill has departed radically from this conception of textbook-making in the volume before us. Regarding the origin of his plan the author says that after beginning medical practice he at once began to feel the importance for diagnostic purposes of reviewing various diseases which might give rise to a patient's leading symptom or symptoms. This information he failed to find in the ordinary textbook. He therefore kept a record of his cases, derived largely from the rich material, so generally underrated, obtainable in workhouses and infirmaries. With this material he approaches his subject from the standpoint of symptomatology; he follows the sequence ordinarily adopted in the actual examination of a patient.

The first chapter gives a general scheme of examination. The general principles of disease are discussed in the second chapter, and thereafter the various symptoms and signs referable to the several organs and regions of the body are taken up with such other details as the individual subject calls for. He divides each chapter into three unequal parts, the first dealing with the symptoms which may indicate disease, the second with physical signs and methods used in their discovery, and the third, and larger portion of each chapter, to a clinical classification of the disease affecting that region, this followed by descriptions dealing with individual

diseases arranged according to their clinical relationships.

In addition to this general plan the author has introduced two special features, the first being, at the beginning of each chapter, a detailed list of symptoms and their causes; secondly, italicized paragraphs have been used to emphasize the important features of separate diseases, thereby facilitating reference and diagnosis. The author considers that the advantages of his method, thus briefly described, are that clinical medicine is approached from the positive rather than the negative side. It is opposed to the so-called "process of diagnosis by exclusion," since the reader is guided not to the least improbable but to the most probable diagnosis. He is further of the opinion that this plan gives a truer view of nature's facts than one which deals with diseases as so many separate entities, an opinion with which we are in most cordial accord.

The task which the author has set himself in carrying out this somewhat elaborate scheme is clearly far greater than that comprised in the making of an ordinary descriptive textbook. We have not as yet had occasion to put the volume to the actual test of experience, but the principles involved in its construction are certainly in the line of scholarly medical writing and stand in marked contrast to the increasingly stereotyped method of producing books.

This first volume, complete in itself, contains 702 pages, including an elaborate index, is most attractively illustrated, and printed in varying sized types to permit of ease of reference and to promote a general systematic arrangement. The first volume takes up so-called local diseases, or diseases causing local symptoms and acute specific fevers of microbic origin. A glance at the pages indicates the very great amount of work and care for detail which the author has expended in the perfecting of his plan. We welcome this volume, and shall look forward with much anticipation to its successor as a unique departure in textbook writing, and are confident that the theory upon which it is based is one which must appeal to men who prefer to study medical problems from a rational rather than from a purely descriptive standpoint. The illustrations, type and general appearance of the book, which is of convenient size, are all beyond criticism. We hope it may have a wide circulation in this country as well as in England.

The American Year-Book of Medicine and Surgery for 1904. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs and textbooks of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of GEORGE M. GOULD, A.M., M.D. In two volumes. Vol. I, including General Medicine. Octavo, 673 pages. Illustrated. Vol. II, General Surgery. Octavo, 680 pages. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

These two familiar volumes, with the date 1904, appear in identical form with those of several preceding years, namely, in two volumes, one devoted to advances in medicine and the other in surgery. It is of some interest that the volumes this year comprise slightly fewer pages than in 1903, owing, no doubt, not so much to a diminution in work done, as to discreet condensation of the material. There have been several changes on the staff of contributors owing to resignations of certain men previously serving in this capacity, but the new names are quite sufficient guarantee of the continued excellence of the general editorial work.

A certain innovation has this year been made in placing at the head of each chapter a brief summary of the more noteworthy advances and discoveries of the preceding year. This is an excellent plan, and no doubt will be appreciated by readers who find it difficult or impossible to read the various abstracts of the original articles in detail. The books, as usual, are adequately illustrated and printed with such a use of type that ready reference is facilitated. The work of the publishers is excellent, as we have come to expect from them.

Uric Acid as a Factor in the Causation of Disease. A Contribution to the Pathology of High Blood Pressure, Headache, Epilepsy, Nervousness, Mental Diseases, Asthma, Hay Fever, Paroxysmal Hemoglobinuria, Anemia, Bright's Disease, Diabetes, Gout, Rheumatism, Bronchitis and Other Disorders. By ALEXANDER HAIG, M.A., M.D. (Oxon.), F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women, etc. Sixth edition. Illustrated. Philadelphia: P. Blakiston's Sons & Co. 1903.

Six editions of this much-discussed book have appeared within twelve years. In the three years which have intervened since the preceding edition Dr. Haig has found occasion to amplify his work on the classification of what he calls uric acid diseases, to rewrite in great measure the chapter on treatment and to discuss some of his investigations with the uric acid filter. The author's attitude remains radical, and might be expressed in his own words as follows: "What eleven years ago in the first edition was little more than possibility or probability is now absolute certainty, a certainty which can be made visible to the untrained and unaided eye in a few moments."

That Dr. Haig is an extremist will be generally acknowledged, and relatively few men in the profession are willing to follow him to his comprehensive conclusions. At the same time it must be acknowledged that the insistence upon the study of uric acid has been profitable and has led to a clearer conception of certain processes of metabolism and disease.

THE BOSTON

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CO-OPERATIVE MEDICAL WORK.

Whatever our opinions may be regarding specialism in medical practice, it is growing each year clearer that intelligent investigation of medical matters demands the special study often of many investigators. We have before us a very striking example of an excellent type of co-operative medical research in the recently published volume on smallpox, comprising the last number of the *Journal of Medical Research.*

It is not our purpose at this time to comment particularly on the character or results of this elaborate piece of work, but rather to call attention to the fact that, under the general direction of Dr. W. T. Councilman, no less than eight men, including himself, have taken part in the various lines of study which have finally led to the completed work. It is scarcely possible that so broadly constructed an investigation could have been carried on by one man. Each, working in his own field, has added something of interest to the general subject, which in its completion presents a well-rounded discussion of the subject from various points of view. We quote this simply as an illustration of what is unquestionably coming to be the best type of medical work. The individual, no doubt, will always be able to produce results of great value, and in certain detached fields will continue, in the future as in the past, to add to the sum total of knowledge.

Many problems, however, which are particularly agitating medical men at the present time, demand the intellect and resources of many investigators directed toward a common end. If under proper leadership such united effort may be brought to bear on single problems, it cannot be doubted that results of more far-reaching significance will be reached than through the researches of individuals, however gifted they may be. Not only is this type of work desirable in our laboratories, but it may well be extended to the broad, practical clinical fields which absorb the attention of many medical men. The modern hospital, for example, with its elaborate outpatient department, subdivided more and more into sub-departments, is offering as never before a field for intelligent co-operative work. The familiar disease processes which may be seen daily at the various clinics, but about which we are still in extreme ignorance, offer a field for research which should include the laboratory as well as the clinical side.

Each department, be it surgical, neurological or laryngological, or any of the others, approaches the subject of tuberculosis, for example, from its special standpoint, and fails in many cases to recognize the far-reaching interrelationships which exist. The suggestion has been made, which appears eminently feasible, that departments of a hospital should unite toward elucidating certain of the medical problems in such a way that each could bring the data derived from its special point of view, and finally unite the results into a general conception of our present knowledge of the subject in question. Details naturally would have to be worked out in each individual case, but the fundamental principle implied in the word "co-operation" cannot be too strongly insisted upon at this time of diversified specialism. The knowledge of the specialist is invaluable. This must be generally recognized, but the knowledge of all, as never before, must be brought together into one comprehensive whole. Could this plan be carried out systematically in hospitals, as in laboratories, there is no question that much of the disrespect with which specialism is treated in certain quarters would give place to a feeling that out of it has come decided advantage to medical knowledge, looked at from the broadest general point of view.

A similar plan may with very great advantage be used in the conduct of medical meetings, as experience has amply shown. General subjects, which have wide bearings and which may be discussed by men working in different fields, always excite attention and stimulate interest as a more restricted subject could not do.

It has been an interesting evolution to observe the gradual development of the special student,

and it will be no less interesting to establish in the future the necessary relationship of this special student to investigators in collateral fields and so to the general body of men concerned with scientific medicine. We have long been convinced that specialism is but a step toward a very much broader and deeper general attitude than has hitherto been attained. This must ultimately be brought about by the completest possible co-operation.

THE TYPHOID EPIDEMIC AT WATERTOWN, NEW YORK.

IN regard to the epidemic of typhoid fever at Watertown, N. Y., mentioned in the last bulletin of the State Department of Health, an investigation conducted by Dr. George A. Soper, whose work at Ithaca as the representative of the department is well remembered, has established the fact that the primary cause of the outbreak was the polluted condition of the town water supply drawn from Black River, which carries the sewage of some thirty or more villages and of a large number of mills. The spread of the disease was due to the usual methods of secondary infection. Some wells were found to be infected and other agencies were discovered. Dr. Soper at once took vigorous measures to combat the epidemic. The over-crowded hospitals were supplemented by accommodations provided in the new high school building, and a second emergency hospital was established for cases complicated with erysipelas, of which a number had occurred. A bacteriological laboratory was instituted, and it is said to have proved extremely useful. Disinfectants of standard quality were distributed free, with cards of instruction relating to their proper and effective use. A cheap and abundant supply of good spring water was arranged for by private enterprise, and the quality of the water insured by daily analysis. The public records, which previously had been very imperfectly kept, were made complete and valuable, and a system established by which they will remain so in the future. The city was cleaned as never before, and the consequences of years of municipal negligence as fully as possible corrected. As a result of the steps taken the epidemic is now abating. According to the latest reports there are 203 cases of typhoid in the city, of which 88 are in hospital and 115 in dwellings under good oversight. A filter plant is being built which will purify the public water supply; but as the seeds of infection have been sown broadcast, great vigilance exercised through a long period will no doubt be needed to eradicate the disease.

THE INFLUENCE OF TRAMPS IN SPREADING SMALLPOX.

DR. KAYE, medical officer of West Riding, England, (*Journ. of the Sanitary Institute*, January, 1904), presents many instances of the introduction of smallpox, through the medium of tramps. In 1893, out of 63 towns invaded by smallpox, at least 37 owed its first introduction to tramps, and in 1903, out of 138 towns, " 100 definitely attributed the introduction to visitors of the tramp class."

In Sheffield, out of 28 importations of smallpox from November to May, no less than 21 were brought by tramps. In Huddersfield 8 out of 13 invasions were thus attributed, and in Barnley, " all of their 46 cases could be traced back to visitors of the lodging-house class."

" When once a tramp receives infection," says Dr. Kaye, " he rarely comes under official observation until he has been in close contact with numbers of his kind, who, in the meantime, have dispersed in all directions, probably carrying with them the seeds of disease, while they in turn will infect other wanderers before their own progress is checked."

The author advises that direct powers be obtained by sanitary authorities to secure the following ends:

(1) Vaccination or revaccination of any tramp *exposed* to the infection of smallpox.

(2) Disinfection of the person and clothing.

(3) Detention of the present inmates of infected common lodging houses, and refusal of new admissions.

(4) Complete closure of common lodging-houses where necessary.

The first of the foregoing recommendations is defective, in advising the vaccinations of *exposed* tramps only, since it is a very difficult matter to determine who has or has not been exposed to infection; hence it were preferable to vaccinate all tramps without exception.

MEDICAL NOTES.

COMPULSORY VACCINATION IN PENNSYLVANIA. — It is stated that a bill will be offered in the coming Pennsylvania legislature to provide for compulsory vaccination in the state under the jurisdiction of health boards.

College of Physicians of Philadelphia. — It is stated that at a recent special meeting the College of Physicians decided to erect a new building at a cost of approximately $250,000.

University of Pennsylvania, Department of Medicine. — The medical department of the University of Pennsylvania will conduct, as usual, a summer school in medicine. It is announced that the course will begin on the ninth of May and extend over a period of six weeks. In most instances the individual courses will be limited to ten students.

Gift to the Johns Hopkins Medical School. — Mr. John D. Rockefeller has given to the Johns Hopkins Medical School and Hospital $500,000, without conditions, to meet its expenses. It will be remembered that the hospital funds suffered severely on account of the fire which destroyed some of its real estate in Baltimore. A more beneficent gift under the circumstances could hardly have been made.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon April 13, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 50, scarlatina 12, typhoid fever 5, measles 155, smallpox 0.

The Union Label Rampant. — It is stated, and we understand correctly, that at a meeting held last Sunday in Boston the Building Trades Council refused to receive a communication from the Boston Society for the Relief and Control of Tuberculosis because there was no union label on the letter head. The letter was returned to the society unread. It has since transpired that the letter heads of one or more of the unions themselves have no union label. Such behavior as this, especially toward a philanthropic body, striving for and seeking assistance for the regeneration of the community is depressing. It emphasizes President Eliot's plea for a free democracy and illuminates his refusal of the union label.

Report of Cambridge, [Mass.,] Board of Health. — The Cambridge Board of Health in its annual report recommends that a new hospital for cases of diphtheria and scarlet fever, with a ward for the care of measles, be established. It is also recommended that a proper hospital be constructed for treatment of cases of smallpox, and also one for tuberculosis.

In general, the board feels that it is desirable that the various infectious diseases should be treated in proper buildings constructed especially to that end. Dr. Eugene A. Darling of the bacteriological laboratory reports that 75 cultures for the determination of the presence of diphtheria were made from 68 cases, and that sputum from 30 cases of tuberculosis was examined with but 4 positive results. The city laboratory was also called upon to use the Widal reaction in 18 samples of blood.

The Smoke Nuisance. — On April 12 the committee on cities gave a hearing on a bill to provide for the abatement of smoke in Boston and vicinity. Prof. C. H. Benjamin has recently contributed an article to *Science* in which he draws attention to certain fallacies regarding the necessity of smoke. He maintains, as has been done before, that smoke means waste, and that, therefore, an attempt to abate the nuisance should meet rather with the co-operation than the hostility of the factory owners and those burning large amounts of coal. Perfect combustion and the prevention of smoke are equivalent terms. The attainment of perfect combustion, which is another word for complete economy, is the problem. This is possible provided firemen are sufficiently educated to do their work with intelligence. The bill certainly should be passed without difficulty, and should meet with the hearty approval of every class in the community.

NEW YORK.

Memorial Chapel at Lincoln Hospital. — A memorial chapel at the Lincoln Hospital and Home (for negroes), in the borough of the Bronx, was dedicated on Easter Sunday. The chapel is the gift of Miss Anna Van Santvoord, and was erected in memory of her parents, the late Com. and Mrs. Alfred Van Santvoord, at a cost of about $10,000.

Cornelius Williams, Insane. — Cornelius Williams, the negro who last autumn murdered Andrew H. Green, revered as the "Father of the Greater City of New York," without provocation and without motive, has been adjudged insane by a jury in the Court of Special Sessions and committed to the State Hospital for Insane Criminals at Matteawan. Drs. Austin Flint and Carlos F. Macdonald, representing the state, and Manson and Allan MacLean Hamilton, for the defense, all pronounced the man positively insane.

DECISION AGAINST UNIVERSITY OF NEW YORK. — After a legal contest extending over several years the University of New York has finally lost in its endeavor to retain the ownership of the Medical College Laboratory of New York City, which for some time past has been under the control of Cornell University. On April 5 the Court of Appeals at Albany handed down a decision, sustaining that of the courts below, that the university reconvey to the laboratory the property in question.

PASSAGE OF THE ELSBERG BILL. — The Elsberg bill, abolishing the office of coroner in New York City after the termination of the incumbency of the coroners now serving, which recently passed the state senate, was passed by the lower house of the legislature on April 8 by a vote of 80 to 30. As it will doubtless receive the governor's signature, this much needed reform, which has been secured after years of determined opposition, may be regarded as an assured fact. By the provisions of the bill the duties at present performed by coroners are assigned to a board of medical examiners under the jurisdiction of the city department of health.

CONVICTION FOR CRIMINAL ABORTION. — Dr. Edward E. Conrad who, through clever detective work on the part of the agents of the New York County Medical Society, was recently convicted of attempting a criminal abortion was sentenced on April 8 by Recorder Goff to an indeterminate sentence of not more than two years nor less than one year in state's prison. This was the first case of conviction for attempted violation of the law against illegal operations, and in pronouncing sentence the recorder stated that he would be pleased if a certificate of reasonable doubt should be obtained in order that the questions involved might be settled by a higher tribunal. Dr. Conrad will therefore probably be kept in the Tombs prison, where he is now confined, pending his attorney's appeal to the supreme court.

MORTALITY REPORT. — The weekly reports of the health department show that during the month of March the mortality in the city represented an annual death rate of 23.80, as against 22.59 in February and 19.23 in March, 1903. The death rate is therefore exceptionally high, while in March of last year it was exceptionally low for the season. The corrected rate, excluding non-residents and infants under one week old, was 22.76. Among the diseases in which there was an increased mortality were the following: The weekly average of deaths from pneumonia increased from 263.25 in February to 296 in March; of deaths from pulmonary tuberculosis, from 172.25 to 195.6; from influenza, from 24.25 to 28.2; from measles, from 17 to 29; from typhoid fever, from 8 to 9.4; and from cancer, from 49 to 51. The mortality from pneumonia reached its climax in the week ending March 5, when there were 350 deaths from the disease. Since then there has been a gradual decline in the number of deaths, and in the week ending April 2, 250 were reported. Among the diseases in which there was a decreased mortality were the following: The weekly average of deaths from diphtheria and croup declined from 54.75 in February to 40.8 in March; of deaths from scarlet fever, from 27.75 to 26.2; from broncho-pneumonia, from 118.5 to 114; from diarrheal diseases, from 48.5 to 41.6; from diarrheals in children under two years, from 38.5 to 32.4; from Bright's disease and nephritis, from 139.5 to 130. 6; and from organic heart diseases, from 118 to 106.4. During the month there was one death from smallpox.

Miscellany.

DR. WEIR MITCHELL IN A NEW FIELD.

IN the April number of the *Century Magazine* there is begun the publication of an article by Dr. S. Weir Mitchell entitled "The Youth of Washington, Told in the Form of an Autobiography." We have all been charmed with Dr. Mitchell's fiction, and probably this article may be said to border on fiction, though abounding in historical facts. The author imitates Washington's style of writing, necessarily. Without inquiring too closely as to the success of the imitation — a most difficult task — we may say that in the main this first installment of the article has the Washingtonian quaintness, and certainly does not misrepresent the great man. Furthermore it is intensely interesting. It is embellished with an excellent portrait of the author. — *New York Medical Journal.*

RECENT WORK ON THE "N" RAYS.

WHATEVER incredulity may be expressed in England in regard to the so-called "n" rays French *savants*, notably M. Blondlot who first described these emanations and M. Augustin Charpentier, are still freely contributing papers on the subject to the Académie des Sciences. The most recent development is the discovery by M. Blondlot of certain new rays allied to the "n" rays and, like them, emitted by the Nernst lamp.

For these the name " n_1 " rays is suggested and they exhibit the peculiarity that whereas the " n " rays increase the brightness of a suitable feebly luminous surface the " n_1 " rays diminish it. M. Charpentier's investigations have been chiefly directed to the physiological action of rays of both kinds. Having found, as mentioned at page 594 of *The Lancet* of Feb. 27, that the acuity of vision is augmented by the action of the " n " rays, he has tried their effect upon the senses of smell, taste and hearing. The organs of all these senses have their activity stimulated by the rays when these are brought to bear upon the nasal mucous membrane, the tongue, or the ear, respectively, and in addition to this the sense of smell can be affected by bringing a source of the rays opposite a point immediately above the glabella or, better, by placing it upon the top of the head a little in front of the bregma. Whether, as in the cases of sight and smell, the effect of greater intensity of taste and hearing can be produced by the action of the emanations upon the brain through the skull is yet undecided, but the difficulty is probably only that of localising the appropriate centers. On repeating his experiments with the still newer " n_1 " rays M. Charpentier found that, as in the case of the luminous screen, results opposite to those already stated were obtained, there being a general decrease in sensitiveness of the organs concerned. — *The Lancet.*

Correspondence.

AN UNAUTHORIZED LABEL.

NEW YORK, April 11, 1904.

MR. EDITOR: Referring to my letter of Feb. 29, regarding the unauthorized use of my name on the labels of the new anesthetic " Anæsthol " (a fact which had only just then come to my notice) I herewith beg to enclose a joint communication from Messrs. Chas. Cooper & Co. and Lehn & Fink, with the request that you kindly have the same appear under " Correspondence " in the next issue of your esteemed JOURNAL.

I hope you will do me this favor, as it will vindicate me in the eyes of such colleagues as may have seen the label and consider it wrong — as I certainly do — for a reputable physician to have his name used for commercial purposes. The enclosed notice is the outcome of a rather lengthy controversy carried on under legal advice.

Very truly yours,

WILLY MEYER, M.D.

ANÆSTHOL.

NEW YORK, March 29, 1904.

MR. EDITOR: We beg to state that the use of the name of Dr. Willy Meyer of New York upon the label of the new anesthetic " Anæsthol " was introduced without his knowledge, though in entire good faith upon our part.

At his request the label has been changed and, in order to protect the medical profession against unreliable imitations, it will henceforth bear the name of Dr. Weidig, the originator of the new compound.

CHAS. COOPER & CO.,
194 Worth Street, New York,
Sole Manufacturers.

LEHN & FINK,
120 William Street, New York,
Sole Selling Agents.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 2, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Diarrheal Diseases.	Typhoid fever.
New York . .	3,908,644	1,668	471	23.20	22.38	2.39	2.51	.72
Chicago . . .	2,021,086	576	128	22.91	21.52	.69	4.34	.69
Philadelphia	1,407,968	588	145	27.71	18.02	1.53	2.55	3.48
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,239	202	58	26.23	16.33	1.48	.49	1.00
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	135	—	18.51	16.29	3.70	4.44	4.44
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	67	21	14.93	17.91	1.49	1.49	—
Boston . . .	617,950	226	54	16.37	18.14	1.32	.88	—
Worcester . .	136,925	35	19	11.43	17.14	—	2.85	—
Fall River . .	119,349	48	19	18.74	27.07	—	8.33	—
Lowell . . .	104,402	32	7	15.65	15.65	—	6.25	6.25
Cambridge .	100,998	17	5	23.52	5.88	5.88	—	5.88
Lynn	73,875	31	7	12.90	—	3.22	—	—
Lawrence . .	72,348	21	10	19.04	19.04	—	—	—
Springfield .	72,020	25	7	36.00	4.00	—	—	—
Somerville .	70,413	21	5	28.57	19.05	—	4.76	4.76
New Bedford	68,883	21	7	14.29	14.29	4.76	4.76	—
Holyoke . . .	50,588	14	4	35.71	21.42	—	—	—
Brockton . .	46,601	13	3	46.20	—	—	—	—
Newton . . .	39,310	9	1	11.11	11.11	—	—	—
Haverhill . .	39,061	8	1	25.00	50.00	—	—	—
Malden . . .	37,205	14	2	14.28	—	—	—	—
Salem	37,188	17	4	—	—	—	—	—
Chelsea . . .	36,499	15	5	6.67	13.33	6.67	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	11	4	18.18	9.09	9.09	—	—
Everett . . .	30,209	14	—	21.42	—	—	—	—
North Adams	29,201	7	1	14.30	—	—	—	14.30
Quincy . . .	26,798	4	1	25.00	25.00	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	8	2	12.50	50.00	—	—	—
Brookline . .	25,576	6	—	—	33.33	—	—	—
Pittsfield . .	22,870	7	1	—	14.30	—	—	—
Medford . .	21,956	4	1	—	—	—	—	—
Chicopee . .	21,692	12	5	16.67	8.33	—	—	—
Northampton	20,314	12	2	—	50.00	—	—	—
Beverly . . .	15,807	5	1	—	20.00	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	4	1	—	25.00	—	—	—
Adams . . .	14,745	2	1	50.00	—	—	—	—
Attleboro . .	14,561	4	—	—	25.00	—	—	—
Hyde Park . .	14,500	8	3	37.50	25.00	—	12.50	—
Newburyport	14,478	7	2	28.60	—	—	—	—
Woburn . . .	14,315	7	3	—	57.20	—	—	—
Melrose . . .	13,819	2	—	50.00	—	—	—	—
Westfield . .	13,809	4	2	25.00	25.00	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	—	—	—	—	—
Revere . . .	13,609	2	—	—	—	—	—	—
Framingham	12,974	15	3	6.67	20.00	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	3	1	33.33	—	—	—	—
Southbridge .	11,716	3	—	33.33	33.33	—	—	—
Watertown .	11,575	1	0	—	—	—	—	—
Weymouth .	11,550	3	0	33.33	33.33	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,960; under five years of age, 1,015; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 894; acute lung diseases 806, consumption 454, scarlet fever 52, whooping cough 14, cerebrospinal meningitis 39, smallpox 7, erysipelas 18, puerperal fever 16, measles 51, typhoid fever 53, diarrheal diseases 102, diphtheria and croup 69.

From whooping-cough, Boston 5, Philadelphia 5, Pittsburg 2, Boston 1, Newburyport 1. From smallpox, Philadelphia 7. From cerebrospinal meningitis, New York 31, Baltimore 2, Boston 1, Worcester 2, Lawrence 1, Newton 1, Chicopee 1. From erysipelas, New York 9, Chicago 4, Philadelphia 2, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending March 19, the death-rate was 19.7. Deaths reported 5,781; acute diseases of the respiratory organs (London) 205, whooping cough 188, diphtheria 53, measles 180, smallpox 5, scarlet fever 37.

The death-rate ranged from 8.3 in Hornsey to 31.0 in Warrington; London 18.8, West Ham 14.5, Brighton 19.0, Southampton 14.4, Plymouth 20.1, Bristol 21.9, Birmingham 24.6, Leicester 22.3, Nottingham 19.9, Liverpool 23.2, Bolton 20.5, Manchester 27.4, Salford 22.3, Bradford 18.1, Leeds 19.3, Hull 16.6, Cardiff, 18.3, Rhondda 23.0, Wigan 27.4, Tottenham 18.0, Preston 22.2.

METEOROLOGICAL RECORD.

For the week ending April 2, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 27	30.05	36	38	34	53	76	64	N W	E	13	5	O.	O.	0
M. 28	30.16	34	37	30	76	81	78	N	S E	9	12	O.	O.	T
T. 29	30.28	34	43	26	59	57	54	N W	S	14	10	C.	C.	0
W. 30	30.42	41	50	32	59	48	54	S W	S	2	10	O.	C.	0
T. 31	30.36	36	40	33	78	95	86	S E	E	4	10	O.	N.	.07
F. 1	30.06	39	42	36	87	96	93	E	W	19	9	O.	O.	1.15
S. 2	29.74	49	54	44	64	74	69	S W	W	11	20	C.	C.	0
☞	30.15		43	34			71							1.22

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 9, 1904.

E. C. TAYLOR, assistant surgeon. Detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the naval hospital, naval station, San Juan, P. R., sailing from New York, N. Y., about April 9.

F. E. CAMPBELL, assistant surgeon. Detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the "Constellation."

J. D. MANCHESTER, assistant surgeon. Ordered to the "Columbia," April 11.

T. N. PEASE, assistant surgeon. Ordered to the "Har tford,' April 14.

J. S. F. REEVES, assistant surgeon. Ordered to the "Minneapolis," April 14.

A. R. WENTWORTH, surgeon. Granted leave for one month from April 5.

L. W. BISHOP, assistant surgeon. Detached from treatment at the naval hospital, Hare Island, Cal. Ordered home and granted sick leave for two months.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED APRIL 7, 1904.

VON EZDORF, R. H., passed assistant surgeon. Detailed as recorder of board of examiners that met at Washington, D. C., April 4, 1904, for the examination of candidates for appointment as assistant surgeon. April 6, 1904.

FOSTER, M. H., passed assistant surgeon. Bureau letter of March 19, granting Passed Assistant Surgeon Foster leave of absence for ten days from March 30, amended so that said leave shall be effective April 29. April 6, 1904.

ANDERSON, J. F., passed assistant surgeon. Relieved from duty as recorder of board of examiners that met at Washington, D. C., April 4, 1904, for the examination of candidates for appointment as assistant surgeon. April 6, 1904.

MCCLINTIC, T. B., assistant surgeon. Relieved from duty in the Hygienic Laboratory, Washington, D. C., and directed to proceed to Tampico, Mexico, for duty in the office of the United States Consul. April 2, 1904.

GLOVER, M. W., assistant surgeon. To proceed to Vancouver, B. C., for special temporary duty. April 3, 1904.

WARREN, B. S., assistant surgeon. Granted leave of absence for six days from April 10. April 5, 1904.

MONCURE, J. A., acting assistant surgeon. Department letter granting Acting Assistant Surgeon Moncure leave of absence for thirty days from April 1, 1904, amended so that said leave shall be effective from April 10. March 31, 1904.

BOARD CONVENED.

Board convened to meet at Stapleton, N. Y., April 4, 1904, for the physical examination of officers of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon A. C. Smith, Chairman. Assistant Surgeon T. W. Salmon, Recorder.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the American Climatological Association. For the year 1903. Vol. XIX. Philadelphia.

Die Entstehung der Tuberkulose mit besonderer Berücksichtigung der v. Behringschen Lehre. Von Prof. Cornet. 1904. Reprint.

Flatulence, Meteorism and Tympanites. By Charles D. Aaron, M.D. Reprint.

Transactions of the Luzerne County, Pa., Medical Society, for the Year ending December 31, 1903. Vol. XI.

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Lecture.

INTRODUCTORY LECTURE AT UNIVERSITY BELLEVUE HOSPITAL MEDICAL COLLEGE.

BY BEVERLEY ROBINSON, M.D., NEW YORK,
Clinical Professor of Medicine.

THERE are few greater pleasures, I believe, than to speak to a thoroughly sympathetic audience when one knows something and wishes to tell it. Such is my attitude towards you, young men, who are working in a great career, if properly understood by yourselves and by the public.

I come before you as Clinical Professor of Medicine. I have, therefore, to do with a big subject, well worthy of the highest ambition of the best medical man to excel in. To teach it well, one should have very many great and good qualities; to teach it as it has been taught, and is still being taught by a very limited few, one should be *facile princeps* amongst his fellows.

What are, or rather should be, the relations of clinical medicine to the different specialties and even to general surgery itself? In my judgment, it should, so to speak, embrace or include them all. Not that I mean to say that any one man can familiarize himself theoretically or practically with all that is known of these divers branches. That is simply out of the question and Utopian.

But on the other hand, the honored professor of clinical medicine should be sufficiently familiar with the different special branches to be able to give a final and wise judgment as to what to do or not to do in nearly every case, and in the event of particular interference to say at what point or time an arrest of treatment may properly be advised. This has long been my position and it remains so; only with firmer conviction as to its great usefulness to the public and to the profession.

Later, I am convinced, when real knowledge of medicine and its higher aims is more generally disseminated and recognized, individuals and families will select their practitioner as the sensible ones to-day do their business advisers. First of all on account of high personal character and absolute rectitude above and over all; then education and opportunity will be considered; then brains; then that quality of heart and hand which obliges a man to do right, and in a kindly, sympathetic way, as well as merely to think straight.

The study of clinical medicine is continuous; it never ends. New knowledge comes every day, and this has to be valued and tested, the good wheat to remain and be cultivated, the chaff to be thrown away, gotten rid of, disregarded. Therefore your motto should be with one of my old French masters, "*Le travail, le travail — toujours le travail.*" Besides, from the clinical standpoint, cases always differ. No two patients are ever precisely alike. In a sense there is no such thing as *a disease;* there is invariably a *person* affected with a disease. Thus we see that while the textbook, or the clinic may provide a description of one or many forms of a given complaint, there are other forms not touched upon; at least the program is incomplete during many long years.

Admitting, in general, we may ere very long find all the types, and familiarize ourselves with them, of various phases of a known disease, we would still have differences depending upon the personal equation, *i. e.*, habit, occupation, temperament, environment, etc., which are as variable as the features, the manners, the sympathies, the qualities of mind. Hence we see that supposing our mere diagnosis is correctly made, in so far as the recognition of a particular disease is concerned, yet the differential diagnoses may still be far from complete, and the prognosis and treatment in reality a more important and difficult subject, although often too much ignored, may rarely be exhaustively treated in individual instances.

With each successive year, I come before my class with a keener appreciation of my own limitations of knowledge, and of how little informed I am practically in certain directions; notably in the more advanced work of the microscopist, the chemist and the bacteriologist. In these lines I must turn, and do so gladly and cheerfully, to the younger generation of physicians for help and guidance. I feel fortunately that I am still appreciative and perhaps possessor of anterior knowledge of these subjects sufficient to enable me in many instances to weigh their value and determine their direct importance when applied to the estimate of a particular patient under observation and treatment.

These clinics before the entire class, and in the college building particularly, have their necessary deficiencies and limitations. In the first place, as you know, our cases are ambulent cases. They come to the dispensary, are seen one or more times by my assistant, and if they present points apparently of interest, they are later brought before the class. Frequently I am unable, in the nature of things, except for a short time or at all, to see the patient in advance; consequently, personally know them only imperfectly. I am of course speaking wholly from the medical side. The salient features of the cases, partly by reason of the information given me by my assistant, partly through my own observation before the class, are considered as carefully before you as circumstances and time permit.

On the other hand, there are numerous modifying, ambient conditions affecting each case, to which I can only refer in a few words, or am obliged to pass over in silence because of lack of accurate available knowledge.

Again, I do not believe mere physical examinations in their entirety and minutiæ can be profitably taught to a large class, by the clinical professor. This is work now assigned to section teaching in a great measure, and very properly so. In the sections with a relatively small num-

ber of students, each student has the opportunity to palpate, percuss, and auscultate, in the various disorders of the heart, lungs, or abdominal viscera, which may be seen outside of hospital wards.

Again, in a limited way, affections of eye and ear, throat and nose, genito-urinary organs and nervous system, may be observed, commented upon and treated. Don't delude yourselves and don't remain under false impressions! There is a very great deal that can be learned only in hospital wards, and in following up cases from day to day, noting changes which occur, the onward progress or arrest of disease and the treatment with alterations and modifications, which new conditions and symptoms render constantly imperative.

A word in regard to the teacher himself. Each professor has his personality; each man will teach according to his own methods and appreciations, provided, of course, he is worthy to fill the place to which he is appointed. Of course he will follow more or less closely certain fixed lines of instruction which may remain unchanged for periods of time, but while this is true, his manner of questioning or examining a patient, his mode of thought, his emphasis of special features of the disease, the importance and bearings thereof, and the conclusions theoretical or practical to be deduced therefrom, are all more or less his own. What you may and can profitably learn from one man lecturing on a given subject, you will not learn in quite the same way from another. But that does not mean to say that the instruction is not equally valuable from both.

Again, the attention is riveted in a different way upon different men. Some professors are precise, cold, deliberate; but their profound knowledge of a subject, their accuracy, their poise, their truth, make amends for coldness and it may be almost stolidity. Other men less profound, perhaps, less prone to see and dwell upon minutiæ, less well balanced at all times in forms, expressions and presentation of facts, have a great attraction in their personal teaching. They are warm and enthusiastic, filled with certain aspects of their subject, which they insist upon and illustrate in ways most taking and suggestive. Such men's teaching must be supplemented usually, to be well rounded and perfect, by the knowledge acquired from books and extensive reading at home. But they have their great value. Their enthusiasm, their honest convictions expressed in no uncertain terms, hold the class almost spell-bound for the while, and the lecture room becomes a delight and a longing. The words, the instruction of such men remain; they are rarely or never forgotten, even in after years when the college benches have been long left behind and the whilom listener has grown gray in the service of his fellow men. I take it that just here remains, and ever will, the inestimable something, the intrinsic power and worth of the spoken word over the written statement. Things written and studied in books are soon forgotten and must be studied again and again, to keep the mind awakened and refreshed. Things spoken, despite the old Latin dictum, "*litera scripta manet*," stand out clearly before the mind's eye, and in times of stress and emergency come forth like beacon lights to help, guide or direct. But in order that this may be so the teacher must always teach the truth as he understands it, unwaveringly, unflinchingly, with trust and hopefulness, in the spirit, like to that of the immortal Harvey. Ultimately, such doctrine from such a source will surely prevail; and why? because it rings true to all men all the way along the line.

A word for the general practitioner and the modern, superabundant specialist. All honor to both. But let us look for a moment at their dividing lines. The one perfecting himself in a single limited branch, the other devoted to all; the one working hard, no doubt, but with many spare hours for self, for home, for relaxation: the other the constant servant of the public in time of trouble and sorrow, of fear and panic, the guiding hand to all, when doubts and anxieties and carking care are present. He it is who carries his own and all others' burdens, and does it willingly, cheerfully, bravely, until tired out with age or disease, and even at such times is rarely known to halt or stop completely, in his Christ-like service to men on earth. He ushers them in upon it, when woeful accents of motherhood about to be make most urgent appeals and cries; he folds the hands, gives the last solace and hope, and says the last prayers with the departing spirit and the heart bereaved mourners, around the flickering lamp of life ere it goes out, many, many times, when no other mortal can, no other mortal does, the thrice holy work.

Is this man now appreciated as of old? Does Ian Maclaren's good physician of "The Bonnie Briar Bush" hold his birthright in isolated communities, or large centers of population? I fear, I believe not, except it be in rarest instances. But I also believe firmly his day will return, and none too soon. It will come back when men, true men, become less ambitious and self seeking, when accurate knowledge of medicine and its lofty aims is more widely disseminated; when worth and service have honors awarded them, when mere wealth is not a passport to high position, when greed and ill-gotten gains are no longer tolerated, and finally, when the clergy generally, high and low, preach more by real life and example, and not so much by doctrine and precept.

Here again, don't let me be misunderstood. The general practitioner, the family adviser, may be true and kind, generous, sympathetic, active, considerate of all men even more than of himself; but to be trusted and relied upon, he must have brains, tact, good judgment. And his brains must be instructed brains, brains that have seen a great deal and observed intelligently, carefully, accurately. He must, of course, be enthusiastic in well-doing, but likewise he must have a fund of common sense (that most uncommon thing of all, perhaps), to fill his thoughts and direct his

actions. He must sift and weigh things before he counsels and advises. He must not be backward in endorsing what is proven to be good and valuable; but he must be lukewarm and partially blind to fads, conceits, ill-reasoned measures to promote health, whether they come from the polypharmacy doctor, or the too daring operator, with other men's health, comfort or lives at stake.

The usefulness then of oral lectures from the veteran in medicine proceeds from the fact that he has seen many moons come and go, many ideas and practices vaunted and heralded with loud hosannas, which very soon were little thought of any more, and consequently comes to possess a prudential reserve of capital, which makes him cry a halt when others rush ahead and do, and find out later how silly and misguided they are, not to say something worse of them. While the newer demonstrations belong to the younger generation, as a rule, in microscopy, chemistry, bacteriology, skiagraphy, the older man should insist upon general conditions which govern, should bring many cases, apparently new or distinct, until properly winnowed and garnered, they re-appear under important laws over-ruling all. He it is who should point out special symptoms or the absence thereof in different cases; he it is who should estimate and assign their due importance and value in all that pertains to diagnosis, prognosis and treatment. The rational explanation of many obscure things should come to him to settle and unravel as far as may be, but not see in every defect or change of organ a local trouble to be attended to with prescription or knife, but only an indication. It is not for him to believe that the body of man is a bit of mosaic work from which here and there a piece may be left out or taken away, without injuring the entire aspect and value of the structure. Rather it is for him to show it is feeling, working, active, dynamic substance and force, which must be most carefully considered from every standpoint before the purposes of nature are counteracted, interfered with, or needlessly and harmfully controlled.

Original Articles.

RESECTION OF THE NASAL SEPTUM WITH REPORT OF FIFTEEN CASES.

BY LEON E. WHITE, M.D., BOSTON,

Clinical Assistant at the Massachusetts Charitable Eye and Ear Infirmary and Assistant in Otology at Tufts Medical School.

Having tried practically all methods for correcting nasal obstruction due to deflection of the septum and finding that recovery was slow, the pain and discomfort great, and the results not commensurate with the difficulties undergone by the patient, I commenced, two years ago, to work on a line which is now developed into what is known as "Resection of the Septum."

This operation has been extensively described by Otto T. Freer, M.D., of Chicago in two excellent articles in the *Journal of the American Medical Association*. In addition to the aforesaid writer we are indebted, among others, to Drs. Krieg, Boenninghaus and Ingals for the work they have done to bring it before the medical profession.

As this operation has not yet received the recognition it merits I wish to enumerate some of its many advantages, to refute the objections, and, as my methods differ from those I have seen described, to give a brief outline of my way of procedure, a description of the special instruments devised and a summary of my fifteen cases.

THE ADVANTAGES.

First: There is accuracy, the work being done under the eye of the operator. As every part of the deflected portion can be seen, and then removed, the position of the septum will be uniformly good. In no other operation is there such a certainty as to the result.

Second: Splints do not have to be worn. These at the best are a great nuisance to both operator and patient.

Third: Rapidity of recovery; three or four weeks as against six or eight by other methods.

Fourth: Lack of pain due largely to the absence of traumatism.

Fifth: Short after-treatment.

Sixth: Freedom from sepsis.

Seventh: Free respiration forty-eight hours after the operation.

Eighth: It is available for either bony or cartilaginous deflections.

Ninth: It creates the utmost possible space by not only straightening the septum but by reducing its thickness to that of the two layers of the mucosa.

Tenth: The lumen of the concave side is never lessened.

THE OBJECTIONS.

First: That it is only adapted to a limited number of cases. As I have obtained perfect results in cases where there was practically total stenosis with an involvement of both bony and cartilaginous portions of the septum it would seem as if the objection were groundless. Dr. Freer while inclined to believe, at the time he wrote his first article, which was published in March, 1902, that there might be cases not suitable for this method, says in his article of December, 1903: "Fuller experience with the resection operation for septal deflections has given me confidence that there is no variety of deviation of the septum it cannot remove in a neat and surgical manner without injury to the patient. Even anteroposterior sigmoid deflections, blocking both nares, may be dissected out from the same nostril in one operation, including both bends."

Second: Length and tediousness of the operation for the patient. The one and one-half hours required is possibly a little longer than is used by other methods but as the patient is in

a recumbent posture he bears it remarkably well.

Third: Difficulties of the operation. With the instruments that have been specially devised any skilled operator easily surmounts every obstacle.

Fourth. Hemorrhage. This is easily controlled with adrenalin and a large number of previously prepared cotton sticks. The question of secondary hemorrhage is no greater, if as great, as in the other septum operations.

Even though the operation does require greater skill and patience on the part of the operator, is he not highly compensated by the perfection of the result and by the comfort and speedy recovery of his patient?

THE OPERATION.

After removing the vibrissæ and cleansing the convex side of the nose it is packed with corrosive cotton pledgets saturated with a 4% solution of cocaine, fresh and recently sterilized. This is allowed to remain about one-half hour; the instruments are meanwhile carefully sterilized, and a large number of cotton applications made ready for quickly removing the little blood that may obscure the operative field. Just before commencing the operation two or three cocaine pledgets are put on the concave side that it may become anesthetic by the time the operation has reached far enough to require it. The pledgets are now removed from the convex side and the surface wiped over with a 1-5000 solution of sterilized adrenalin. This, by the way, should be used sparingly, or not at all, on the concave mucosa as it tends to lessen its vitality and thus to predispose to a local necrosis.

A vertical incision is now made, just anterior to the deflection and extending from a point as high up, or higher than its top, to a point just above the floor of the nose. When we have a simple anterior deflection, with no great thickening, this long vertical incision will be all that is required, but when there is marked thickening or when the deflection is extensive, or far back, it is necessary to make a second incision parallel to the floor of the nose, commencing just beyond and below the most prominent part of the deflection and extending forward to meet the base of the vertical incision.

Figs. 1 and 2 show the two knives I have had specially constructed for making these incisions.



No. 1.



No. 2.

In one the blade is placed parallel to the handle while in the other it is at right angle. These blades are so guarded that they will cut to a depth of 1.5 mm. When a deeper cut is needed it can be made by drawing the blade through the incision two or three times. With these knives I have been able to make my incision with perfect ease and safety wherever necessary. The little bleeding that usually follows these incisions being checked, the mucous membrane is then dissected up, together with its perichondrium, over as much of the convex area as possible. For doing this I have devised two instruments which are peculiarly useful. As shown in Figs. 3 and 4 they have large handles with



No. 3.



No. 4.

blades at an angle of 135° thus giving an unobstructed visual field. The width of the blades are respectively 5 and 9 mm. this being the only point in which they differ. The blades are quite thin, have rounded edges, and are just blunt enough to prevent a cutting of the mucosa. With these powerful instruments the cartilage can be freed from its mucosa in an incredibly short time. In those cases where only a vertical incision is required we are now ready to incise the cartilage, but in those cases where an additional horizontal incision has been made, the mucous membrane is dissected off, rolled upward and backward and, when of considerable size, is held at the top of the nose by a small pledget of cotton. Up to this time the patient has been in a sitting posture and I have used for illumination the light of a 50-candlepower electric reflected into the nose by a head mirror. From now on the operation is done with the patient reclining on a high operating table, the head resting on an adjustable section so that it can be raised or lowered as it becomes desirable to illuminate any particular part of the septum. A portable electric light placed beyond the patient's head and a little below the level of the operating table now furnishes the source of light. The next step is to incise the cartilage at the point where the deflection commences. This is done with the guarded knives used for incising the mucosa and shown in Figs. 1 and 2. I have never yet perforated the opposite mucous membrane when using these knives. The smaller of the two dissectors is now inserted through this incision in the cartilage and the concave mucosa pushed away from it over a small area and then this denuded portion is removed by my cutting forceps. With the larger dissector the mucosa is now, with its perichondrium and periosteum, lifted away as far as possible from the deflected

cartilage and bone. I find that it is important to preserve the perichondrium and periosteum as they give added life and strength to the future septum. The work of the dissector should be watched through the opposite naris so as to guard against tearing the mucosa. Great care must be exercised in removing it from the bony base of the deflection where it tends to adhere. As soon as the mucosa is separated from the deflection the concavity disappears. Having now freed the cartilage from its covering over as large an area as is accessible, it is removed piecemeal by cutting forceps which I have had specially designed for this purpose. These as can be seen in Fig. 5 are very powerful; the



No. 5.

handles are 14 cm. long and the distance from the lock to the end of the cutting blades is 7 cm. With them it is possible to remove not only the cartilage but, when necessary, a considerable area of the bone. Occasionally I find it useful to have recourse to Stacke's rongeurs, Gruenwald's forceps, or a long chisel, for the removal of the bony ledge sometimes found along the base of the deflection. A couple of ring curettes, which I have had made with stronger rings and with larger and longer handles than is usual, are also useful for removing small projecting fragments. The major part of the operation is done with my special forceps. As the size of a section removed by the cutting blades is 10 x 5 mm. it is possible to take out a large deflection in a short time, and, as the blades form with the handle an angle of 122°, one has an almost unobstructed visual field, even when working far back in the bony septum. Occasionally two or three bites have to be made at the same section of bone before it can be detached; as it is advisable to thus remove it, rather than to twist it off. The deflection having been removed, the nose is thoroughly cleansed with a warm alkaline solution and the flap replaced. It is generally wise to replace this two or three times, during the later stages of the operation, to make sure that there are no points of the deflection left that might unduly press against it, which would prevent, when healed, a perfectly straight septum.

The next step is to insert sutures, the number dependent, of course, upon the size and position of the flap; as a rule I use two to close the vertical incision and one or two on the horizontal. In some of my cases the second suture on the horizontal flap has been at a depth of 3 cm. For accomplishing this I have found it necessary to have constructed, short, strong, curved needles which can be turned within the nose, and for holding these a special pair of Alligator needle holders. (Figs. 6 and 7.) Some objections have been made to suturing the flap, one writer claiming that it is a difficult procedure and unnecessarily prolongs the operation, while other authorities, notably Krieg and Boenninghaus, go so



No. 6.



No. 7.

far as to advise one to make no attempt to preserve the lining on the concave side, as they maintain that it rolls up and cannot be stitched in place. As with the needles and needle holder mentioned one can insert three sutures without difficulty in about ten minutes, it would seem that these objections have been overcome. The advantages of the sutures are, that they keep the edges of the wound in coaptation so that, over a considerable length, if not over the entire incision, primary union can be obtained; they moreover keep the flap in place when packing the nose and prevent its curling up, which it has a decided tendency to do; in fact, it almost always seems too small for the space we desire to have it fill and I generally find it necessary to do considerable pulling in order to re-adjust it. In some of my early cases, where I did not use sutures, recovery was much slower than in later ones, as there was always a considerable area to be filled in with granulations. In some of these later cases primary union was practically obtained.

The sutures being inserted the nose is wiped out with a 1-3000 bichloride solution, powdered with Aristol and packed with 10 or 12 cylindrical plugs. These are some 5 cm. long by 5 mm. in diameter and are made from corrosive absorbent cotton, saturated with sterilized liquid albolene. To prevent too much strain on the flap, when packing, I protect it by placing the larger of my blunt dissectors against it while inserting the plugs. These are placed one above the other, close to the septum, so as to cover the flap lightly at first; then other plugs are inserted external to these, not much pressure being exerted, until there is built up, as it were, a sort of triangular barricade with the base on the septum and the apex between the middle and inferior turbinates. The last two or three plugs, the ones which form the apex, are packed in tightly so that the pressure thus obtained is evenly distrib-

uted over those forming the base of the triangle, *i. e.*, the ones in contact with the septum.

In my first cases I used iodoform gauze but found that I could not obtain with it such even pressure over the operated area as I desired and that there was considerable pain and hemorrhage accompanying its removal. When it remained in four days it was saturated with a secretion that was anything but aseptic.

In none of my cases have I found it advisable to pack the concave side, although it is recommended by some writers. At the end of twenty-four hours the three or four plugs that form the apex of the triangle are taken out, which at once relieves the patient from the discomfort of the packing without in any way disturbing those plugs lying against the wound. In another twenty-four hours the remainder of the packing is removed and the nose gently syringed, through the posterior nares, with a warm alkaline solution. The nose requires no repacking, but it is wise to have the patient wear in the vestibule for the next forty-eight hours, small pledgets of corrosive absorbent cotton which he changes frequently and removes altogether when he wishes to sleep. These for about a week are worn when the patient is exposed to dust or cold, otherwise they are omitted. The after treatment is such as may be needed to keep the nose healthy and free from crusts which usually last from three to four weeks. When the crusts have ceased to form, and the septum has become smooth, and is entirely free from granulations, the case is considered well. The results in my fifteen cases, and in all other cases I have seen reported, give this operation a much higher value than those other procedures designed to correct nasal stenosis due to a deflection of the septum. It is based on rational ideas, produces a permanent correction of the deformity and is worthy of more general adoption. My first six cases were done under much difficulty as the instruments were not then developed. Familiarity with the needs of the operation led me to design various instruments, which have been modified and changed until the ones described seem to meet all requirements. As my instrumentarium and technic were developed before I became familiar with the literature on the subject it will be found that they differ in many respects, especially in their simplicity, from those described by other writers. It has been my aim to have as few instruments as is consistent with a quick and accurate method of operating. It is very probable that other methods may have advantages over this, but experience has rendered it possible for me to do my last three or four cases with greater facility than ever before, having reduced the time from two to one and one-quarter hours.

THE FIFTEEN CASES.

The patients were all adults, five females and ten males. Six were deflections to the right, 6 to the left, and 3 in both sides or sigmoid. Six cases were purely cartilaginous, 3 bony and 7 both cartilage and bone. Seven had thick bony bases or spurs while the remaining 8 were deflections, with little thickening above the normal, the obstruction being caused by the angularity. In one case there was absence of the cartilage over a small area, the result of a previous attempt by another operator to correct the deformity with a saw. Nine cases were angular deflections, 3 bowed and 3 sigmoid. In 10 the deflection began near the front while in the other 5 it occurred in, or just anterior to, the bony septum. There were 5 cases where the deflection measured anteroposteriorly 4 cm. or more, and in these it was necessary to remove a large area of cartilage together with a considerable area of bone. In the first six cases I had two perforations while in the last nine but one. The first two were due to a lack of proper instruments and happened at the time of the operation, the last one probably came from a sloughing of the mucosa due either to the too free use of adrenalin or to the pressure from the gauze packing. Since I have avoided the use of adrenalin on the concave side and substituted the oil pledgets for the gauze I have had no perforations, *i. e.*, in the last seven cases. The perforations were all of small size and have not caused the least annoyance to the patients. This is because their periphery consists of mucous membrane only so that there is no crusting or bleeding, as there is in those cases where the periphery is cartilaginous. It is annoying to have perforations, but, with the improved instruments and the use of the cylindrical plugs, it should be of only rare occurrence if at all. In none of my cases has there been any secondary hemorrhage. A vertical incision was made in 4 cases while in the remaining 11, horizontal ones, in addition to the vertical, were required. In 2 cases where the perpendicular plate of the ethmoid was in firm contact with the middle turbinate it was possible to free it of its mucosa with the dissectors and then to work the long, biting blades of my forceps around it and to remove the deflected area which measured over 1 cm. in diameter. In two of the angular cases the mucous membrane of the concave side was caught in a very acute angle and, as it was thin, great care had to be exercised to free it without tearing. In these cases there was almost total occlusion of the convex sides and it looked as though there would be altogether too much tissue for the future septums, if they were to be in the median line; the results were absolutely satisfactory as the tissues shrunk sufficiently to cause the septums to be straight. The lumen of the concave side was not lessened in any of my cases. This is in marked contrast to the narrowing that occurs in those operations where the redundant portions of the septum are carried over into the concave sides.

In the first of my three sigmoid cases I removed the anterior bend at one sitting and the posterior bend at another, some six weeks later. This was, however, an unnecessary procedure as I found in my two later cases that it was possible to remove both bends through one side of the nose at the same time.

In an old specific case the anterior end of the vomer for over 1 c.m. was found to be a sequestrum while the vomer adjoining this was very soft and friable to a considerable depth; convalescence however was rapid and uneventful. In none of my cases was there any damage to the nasal profile, while in two of them, where there was a decided twist in the nasal tip, the deformity was greatly lessened.

All writers on this subject are agreed that there is no danger of a depression of the bridge of the nose from the removal of so much of the septum. The septum is not a support for the nose, but

only a division between the nares. It is further claimed that the cartilage is gradually replaced, but I have not been able to verify this assertion. It would, however, be of small consequence either way, as if replaced, it would be deposited between the two mucous membranes which are in the median line and in contact. Fever did not occur in any of my cases nor was there edema or marked swelling. The results in all my cases were most gratifying. The nose after this operation, to the great surprise and delight of the patient, is neither sore nor painful, and practically the only discomfort is that of the packing which obstructs the breathing for two days. It is not necessary to use enough cocaine to cause any heart depression or faintness and my patients have all been able to go home as soon as the operation was completed. It is not unusual for them to express sympathy for the operator as he seems of the two to be the more exhausted. There is so little reaction after the operation that patients do not as a rule need to be confined to their beds. When circumstances make it rather compulsory they are permitted to return to their work the second day after the operation; a week's rest, however, is always advisable. For three or four weeks the operated naris is more or less obstructed by crusts so that respiration is not as good as it will be eventually. It is important that the general condition of the patient should be carefully watched, his hours of rest and recreation inquired into and tonics prescribed if circumstances warrant their use.

In reply to several inquiries as to the use of my instruments in the sub-mucous operation on spurs let me add that they are useful. The knives and dissectors readily free the spur from its mucosa and then with either the long chisel or the forceps shown in Fig. 5 it can be easily removed. The objection to the saw is, that it does not readily take hold of a denuded bony spur and is liable to injure the flaps. Many so called spurs will be found on careful examination to be but the more or less thickened apices of deflections and to obtain good results it is wise to resect these protruding sections.

NOTE. The instruments illustrated in this article are manufactured by Messrs. Codman & Shurtleff, Boston.

SOME CLINICAL OBSERVATIONS ON THE CARE OF SEPTIC WOUNDS.

BY ARTHUR L. CHUTE, M.D., BOSTON.

THERE is a wide diversity of opinion as to the best method of dressing septic wounds. For some years I have taken a particular interest in this subject, and have watched a considerable number of septic wounds under various sorts of treatment with the idea of determining if possible which method gives the best results. My observations have been entirely clinical, and have been directed particularly toward the following points; the desirability of the moist antiseptic dressing as compared with the sterile gauze dressing; the effect of the so-called "antiseptic poultice," and the result of the use of antiseptic irrigating fluids and antiseptic baths on septic wounds. In so far as my observations have gone they have been practically a comparison of the aseptic, with the moist antiseptic treatment of septic wounds.

The chief advantage which most of its advocates claim for the moist antiseptic dressing, when applied to septic wounds, is its supposed bacteriacidal power. Its ease of application, and the slight grade of aseptic skill required, are, I think, seldom, if ever considered as its great advantages.

We know that by the intelligent application of antiseptics we can render an operating field surgically sterile, even though we cannot, as recent investigators teach, render it sterile from a bacteriological standpoint. We also know that in all sorts of recent wounds, we can, by antiseptic irrigation, remove infectious material, or render it inert. Perhaps a natural conclusion is, that if antiseptics can prevent sepsis when applied to recently infected wounds, they must necessarily be of value when applied to wounds already septic.

I feel confident that we have just reason to doubt the accuracy of this conclusion. When a septic process is under way, I believe the application of antiseptics has no parallel to their application in the conditions spoken of above.

In the instance of the healthy skin or of a mucous surface, we have the organisms on the surface, in the loose upper layers, in the glands or their ducts. In the recently infected wound the organisms are lying free and have not yet begun their growth in the tissues. In both cases the antiseptic can reach and destroy, or exert its inhibitory influence upon such organisms as are not removed mechanically. In a septic wound the conditions are wholly different; the organisms which are actually doing the damage are in the tissues, and the application of an antiseptic, particularly one like corrosive sublimate which is precipitated by albuminous substances, has little chance of reaching them.

Several commonly observed clinical phenomena, seem to me to give us reasonable ground for doubting the penetrating power of antiseptics when applied to septic wounds. The wall surrounding a focus of suppuration becomes, as soon as it is opened, an excreting rather than an absorbing surface. This is shown by the decreased absorption of toxins and the consequent fall of temperature, as well as by the tremendous amount of detritus which these wounds often pour out. It is true that we occasionally see absorption of carbolic acid or iodoform from the surface of wounds; these instances are, however, relatively rare. In my observation this absorption has usually occurred, not in septic wounds, but when these substances have been used either in recent aseptic wounds or on granulating surfaces. In both of these conditions there is a much greater power of absorption than in septic wounds which are essentially excreting surfaces,

trying to rid themselves of organisms and inflammatory products. The fact that a mono-infection easily becomes a poly-infection does not necessarily mean that the surface of a septic wound has any considerable power of absorbing chemical substances. Another point against the absorption, or if there is absorption, against the efficacy of antiseptics in these wounds, is the fact that the signs of infection first disappear in the periphery of the red, indurated area surrounding a septic wound. If antiseptics had any considerable influence on this process, we should expect the area nearest the wound would be the first to clear up, as it is most intimately in contact with the antiseptic. A third reason, to me very conclusive, is that in my personal observation, septic wounds treated aseptically clear up quite as soon as when treated antiseptically.

For the above reasons I believe the antiseptic dressing, when applied to septic wounds, fails in the only advantage which in theory it possesses over the aseptic dressing, and that it exerts no appreciable bacteriacidal action.

A dressing for a septic wound should secure three things: it should give protection from infection from without; it should drain the wound well; it should stimulate as far as possible the proliferation of healthy granulations.

As far as the matter of protection goes, neither the moist nor the sterile dressing has any conspicuous advantage over the other. Both are efficient.

When one considers the question of drainage, the septic cavity which is packed with sterile gauze is much more efficiently drained than that treated by a moist dressing. At the very outset the absorbing power of dry gauze is naturally greater than that of moist gauze; even when that part of the dressing which comes in contact with the wound surface is pretty well saturated with discharge, the absorbing power of the dry gauze remains greater, if the dressing contains anything like an adequate amount of it.

The most conspicuous advantage, however, which dry dressings have over moist dressings, when used in septic wounds, is in the rapid production of healthy and vigorous granulations. Under the use of sterile gauze a septic wound rids itself of its infection and becomes practically an aseptic wound quite as quickly as under the moist antiseptic dressing. Not only this, but the granulations are more healthy and vigorous.

The ease and rapidity with which a wound rids itself of sepsis when unhampered by antiseptics often permit of the employment of secondary suture. In large wounds, one may by this means materially shorten the convalescence. The great advantage, however, of secondary suture is not in saving a few days in the convalescence, but in permitting the closer approximation of the fascial planes in large wounds involving the abdominal wall, or in other situations where a weak scar is particularly undesirable. If a septic wound is to be allowed to fill by granulation, this process requires less time under the aseptic dressing due to the increased vigor and power of proliferation which granulations have, when unhampered by chemical irritants.

This more vigorous production of active granulations under the use of sterile gauze seems to depend on several factors: the mechanical stimulation of the gauze, the dryness which a properly applied gauze dressing brings about, and the absence of the depressing effect of antiseptics.

The mild aseptic irritation caused by dry sterile gauze seems to be just sufficient to stimulate a wound to its utmost in the throwing off of inflammatory products and producing of granulations. It is very difficult to tell just how much is due to the stimulative action of the gauze, and just how much is due to the dryness of the wound. Dryness of a wound seems to be a condition which is particularly favorable for the production of healthy granulations. The presence of any amount of discharge makes granulations dull and sluggish, as can be easily demonstrated by covering any healthy granulating surface with some non-absorbent dressing. That the gauze is in itself an active stimulant can be demonstrated by the rapidity with which a small slough will brighten up when gauze pressure is brought to bear upon it. That chemicals depress the vigor of granulations is, I think, shown by the dull, sodden, bluish appearance which bright granulations often show after soaking in an antiseptic solution. If, as we are so often told, the normal salt solution is the only fluid which does no injury to healthy cells, we need hardly wonder that antiseptic solutions harm cells whose vitality has already been lowered by a septic process.

An accurate comparison of the results gotten by these two methods of treatment is very difficult, as it is hard to say that any two septic wounds are identical as regards the question of healing. So far as outward appearances go, wounds may be very similar, but when one attempts to take into consideration the sort of organism, the virulence of the culture, together with the resistance of the patient, the problem is a complicated one, and an accurate comparison becomes a very difficult matter. From watching the course of a considerable number of septic wounds, with this point in view, I am convinced that we are unable to affect, by any application of antiseptics, such pus organisms as are in the tissues; that we must depend entirely on nature to rid the tissues of these organisms, and that the presence of antiseptics on granulations is detrimental to their vigor, and therefore to the rapidity with which a wound becomes healthy. In dealing with septic wounds, we can make the conditions such as are most favorable for the wound to *rid itself* of its infection, but we cannot in any way exert a direct bacteriacidal action on organisms in the tissues.

Some things which are of importance in helping a wound to rid itself of infection are: making it of such shape that it can be properly dressed, which means in a general way having the mouth

wider than the bottom, and avoiding so far as possible anything like a flask-shaped wound; protecting the wound from secondary infection by carrying out any operation aseptically and doing dressings in an aseptic manner; providing suitable drainage so that the granulations are not depressed by the waste products which the wound excretes; using mechanical stimulation to urge the granulations to their greatest reparative effort. My experience has been, that the dry sterile dressing meets these indications better than the moist antiseptic dressing.

By an "antiseptic poultice," I refer to a warm moist dressing, usually wet with a solution of corrosive sublimate or creoline, which is covered with some impermeable material to retain its heat and moisture. This dressing I have found open to the same charge of inefficiency from the bacteriacidal standpoint as the moist dressing, while its debilitating effect on the granulations is greater. Both these objections, however, I think are of minor importance when compared with a real danger which the antiseptic poultice sometimes possesses. This danger consists of a partial masking of the true condition of affairs. In a certain proportion of cases, the use of such a poultice brings about a marked dermatitis, often accompanied by considerable edema. This dermatitis may mask, to a considerable extent, the real progress of the disease. Lymphangitis, if present, is not so noticeable as it would otherwise be. The brawniness due to the dermatitis hides, or makes it more difficult to tell accurately, what is happening deep in the tissues. Pain is occasionally so much lessened by the antiseptic poultice as to give a false sense of security. This is most marked in septic processes in loose tissues. This analgesic action is probably partly due to the action of the heat and moisture, yet when carbolic solution or allied substances are used, a part may be due to the anesthetic properties which carbolic acid shows when applied to the skin. I have seen several instances in which I feel confident that a septic process has been allowed to extend much further than it otherwise would have been allowed to do, had it not been for this masking of conditions, brought about by an antiseptic poultice.

Certain mild infections, which look as though they would go on to suppuration, resolve under the use of the antiseptic poultice. In these instances we are prone to credit the poultice with bringing about resolution. I have seen a number of similar infections disappear under simply a dry dressing, infections which in every way have resembled the processes I was accustomed to see disappear under the use of the antiseptic poultice, and as I supposed, as a result of it. The claim that the heat is of value is untenable, for as ordinarily used the poultice is soon reduced to the temperature of the part, so that the part is no warmer than when covered with a dry dressing. I have been unable to convince myself that the antiseptic poultice expedites the separation of sloughs. As this process of casting off depends on the proliferation of granulations, anything which enfeebles them is more likely to lengthen the process. That it is at times a somewhat more comfortable dressing, I think cannot be denied.

When a septic wound is of a proper shape, and is properly dressed, it should rarely be necessary to irrigate it. The little discharge left after the removal of the dressing can be wiped off with sterile gauze. There may be instances where it is unwise to make the sacrifice of tissue necessary to have a wound of proper shape for gauze drainage. In these instances irrigation may be necessary in order to mechanically remove the collected discharge. The material used should be salt solution. Peroxide of hydrogen is open to a particular criticism to which the other irrigating fluids are not. Beside being no more effective as an antiseptic as regards organisms in the tissues, and beside acting as an irritant to the granulations, its gas-producing power may make it an actual spreader of sepsis, when used in cavities which are not widely open. This is particularly true in loose tissues. I recall especially a case of suppuration in a fat abdominal wall, in which the vigorous use of peroxide greatly prolonged and apparently spread the suppuration.

The objection to the antiseptic bath is that, like the application of antiseptics to wound surface by other means, it does not harm the organisms in the tissues, while it does enfeeble the granulations, thereby lengthening the reparative process. The bath simply cleanses the wound surface; this can be done more quickly in other ways and without depressing the vigor of the granulations.

While I have found dry sterile gauze the best routine dressing for all actively suppurating wounds, there are conditions where other dressings are indicated. The old indolent surface of which the varicose ulcer is a type, is one of these. In these cases the surface is very sluggish and needs a more powerful stimulant than sterile gauze. If one does not curette away the fibrous tissue base, strongly stimulating applications, such as iodoform, balsam of Peru, boracic powder and the like, are undoubtedly preferable to simple dry gauze. The more active antiseptics, however, have the disadvantage of acting more as depressants than as stimulants. When a septic wound has been reduced to a healthy granulating surface, and we are seeking to encourage an epithelial covering, ointments are indicated, as the changing of gauze injures the delicate ingrowths of epithelium.

There are some points in the aseptic care of septic wounds which deserve particular mention. The first object to be sought in a septic wound is to convert it into one which is, clinically speaking, aseptic. To get the quickest result in this respect it is necessary to keep the wound as free as possible from discharge. To do this the dressing should be changed whenever it becomes pretty well saturated. This may mean in large wounds changing the dressing at shorter intervals than daily for a time after operation, and applies to the outer absorbent part of the dressing, not

as a rule to that part lying in contact with the wound surface. McBurney[1] emphasizes the importance of this, as well as the general importance of treating septic wounds aseptically. With most septic wounds daily dressings are sufficiently frequent; in occasional cases a more frequent change is of benefit.

In dressing a wound care must be taken that the gauze is not packed in so firmly as to actually interfere with drainage. On removing the gauze from a wound cavity, it is desirable to make pressure near the margins while one watches to see if any drop of pus appears on the granulations. This is to guard against overlooking any pocket which is not being properly drained. If the wound is not dry on the removal of the dressing, it should be wiped dry before this pressure is made. The use of a head mirror is often of help in inspecting deep cavities such as those left after opening an abscess about an appendix. When there are sloughs to separate, or places where the granulations are gray or flabby, increased pressure should be made at these points, as the dressing is being replaced. When the whole wound surface is bright, the gauze should be packed in loosely, it should, however, come in contact with the whole granulating surface, that the wound may be kept as dry as possible. When a wound is covered with red, healthy granulations the time of healing may be reduced by secondary suture. This is only worth while in relatively large wounds. The simple device of strapping a wound with gauze strips and collodion applied in such a way as to bring the surfaces together, is occasionally sufficient to make them adhere. It always lessens the time required for a wound to fill in. It is probably unnecessary to say that in dressing all septic wounds the general aseptic technique should be carefully followed in order to avoid a poly-infection.

The conclusions which I have drawn from purely clinical observations on a considerable number of septic wounds are as follows: dry sterile gauze dressings are far preferable for the dressing of septic wounds because they, by their greater power of absorption, most efficiently drain the wound, and by their slight mechanical irritation and comparative dryness make the granulations more active and allow us to take full advantage of nature's reparative power, while moist dressings and antiseptic baths and irrigating fluids have a depressing effect on the granulations; moist dressings are, however, indicated when one cannot obtain sterile dressings or cannot depend on the aseptic skill of the persons who are to apply the dressings. "Antiseptic poultices" are not to be preferred to sterile dressings and there is at times a danger in their use; in case irrigating fluids are necessary, when from some unusual reason we are unable to make a wound of such shape that it can be properly dressed, sterile salt solution should be the irrigating fluid used. One should avoid peroxide of hydrogen since in partially closed cavities or loose tissues its gas production may make it a spreader of infection; the use of dry sterile gauze meets the indications in the routine treatment of the great majority of septic wounds better than any other material.

I wish to acknowledge my indebtedness to Dr. J. W. Elliot who was the first to direct my attention to the importance and advantages of asepsis, rather than antisepsis, in the care of septic wounds.

[1] N. Y. Med. Journ. 1902, vol. 75, p. 493.

Clinical Department.

REMOVAL OF CALCULUS IN THE URETER BY A NEW METHOD.

BY EDGAR GARCEAU, M.D., BOSTON, MASS.,

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MRS. M. L., thirty-four years old, married, was first seen on July 21, 1903. She had been in the most excruciating agony for a whole week, during which time she had made ineffectual efforts to pass a stone, impacted in the course of the left ureter. As this was not the first attack of the same nature, and as she had seen stones, passed on previous occasions, there was no doubt about the diagnosis at first glance. On examination there was no difficulty in detecting a very large stone situated fully 9 cm. from the entrance of the ureter into the bladder. It could just be reached with the examining finger.

The patient's condition was serious. She had reached the limit of endurance and immediate surgical interference was imperative.

Although the stone was well back in the vagina behind the uterine artery it was thought best to attempt its removal by a vaginal operation because it seemed that it could be more quickly removed in this way. On examining under ether it was seen that removal by a simple incision of the vaginal vault would be fraught with considerable difficulty on account of the distance of the stone from the vaginal outlet; especially if there should be a hemorrhage, which seemed not unlikely to happen as the patient had just been delivered of a child only six weeks before and the parts were in a very congested state and very soft. It occurred to me that if I could push the stone down into the vagina and keep it there while the vagina was being incised, the stone would serve as a guide upon which to cut. I tried to do this by pressing down through the abdominal walls, but it was not satisfactory; the stone slipped. The thought then occurred to me to incise the anterior cul-de-sac, push back the peritoneum between the bladder and the uterus as far as the broad ligament, then evert the broad ligament backwards, with the tip of the finger, catch the stone with the tip of the finger crooked at the last joint, force it down and towards the vaginal outlet, cut upon it with a very small incision, and finally squeeze it out. If there were hemorrhage it could be easily controlled by pressure from above with the finger, and sutures could be passed without trouble. Hemorrhage from vessels of the anterior cul-de-sac was not to be feared as it could be easily controlled.

The operation was performed as planned without the least difficulty. With the Péan retractors, which are used in performing vaginal hysterectomy, the anterior cul-de-sac was quickly opened, the peritoneum pushed back, and the broad ligament everted. The stone was found with ease and was pushed down into the vaginal vault, where it was delivered through a

very small incision. Immediately upon delivery the vaginal incision was closed with silver wire sutures, which took in the walls of the ureter. Some hemorrhage occurred in the anterior cul-de-sac, and as it was not desired to take any more time a few clamps were left on the vessels. A gauze drain was put in. The whole operation took ten minutes, and the stone was delivered in five minutes. The convalescence was not remarkable and there was no fistula. The ureter has remained pervious since the operation for both ureters have been catheterized since. The stone was a very large one and it could not possibly have been passed *per vias naturales*. It weighed in the dry state 7 dg. and it was 1 cm. long and nearly 1 cm. wide at the widest part. It consisted of phosphate of lime.

At the time this operation was done I was not aware that Doyen* had originated an almost similar operation for the removal of stones in the ureter. Doyen's operation, however, differs in a number of essentials. He incises the anterior cul-de-sac, and the ureter is exposed in the cul-de-sac. Then the stone is removed *through the cul-de-sac* itself and *not* through the vaginal wall. The operation terminates by suture of the ureteral walls and a drain is left in the cul-de-sac. Doyen's operation must take a great deal of time on account of the technical difficulties, and a fistula must be more serious in the anterior cul-de-sac than in the vagina, should one result. The advantages of the operation as performed upon my patient are obvious. The technique is simple. Hemorrhage is under perfect control. It is very rapid. I feel certain that very high stones can be pushed down and brought within reach. If fistula results the consequences will not be as serious as they are when the sacral, the rectal, or the Doyen method is employed, and operations for fistula are easier through the vagina than through the other routes mentioned. The ureteral and the vaginal walls can be sutured *en masse* with success. As the ureter in these cases is always dilated, this suturing is less difficult than it appears on first sight. If it leaks subsequently, the leakage will take place between the stitches and no harm will result. Of all the advantages gained, that with reference to time is the most important. These patients are almost always desperately ill, and time is an element sometimes not sufficiently considered.

Medical Progress.

REPORT ON PATHOLOGY.

BY JOSEPH H. PRATT, M.D., BOSTON.

THE PATHOLOGICAL ANATOMY OF PARATYPHOID FEVER.

Wells and Scott[1] report a fatal case of paratyphoid fever. Only four other instances have been recorded in the literature although nearly a hundred cases of the disease have been recognized during the past six years. The chief clinical features in the case studied by the writers was the continued fever which reached 104° on the day of admission to the hospital. The pulse was somewhat accelerated and dicrotic. A few rose spots appeared on the abdomen and the spleen was palpable. Intestinal hemorrhage occurred early in the disease. The patient died during the fifth week of illness. Agglutination tests with the typhoid bacillus were negative. Unfortunately the reaction of the blood with paratyphoid bacilli was not tested. At the autopsy a paratyphoid bacillus was obtained from the spleen and kidney and there can be little, if any, doubt that the case was one of paratyphoid infection. The organism produced a terminal alkalinity in milk and hence belongs in group β of Buxton's classification, although the authors place it in group α.

The spleen weighed 400 gm. and was very soft. The lymphatic apparatus of the intestine was not involved and the mesenteric lymph nodes preserved their normal size. Numerous irregular superficial ulcers were found in the ileum just above the ileo-cecal valve. There was no infiltration around the ulcers and they resembled those of dysentery much more than those of typhoid. Similar ulcers occurred in the case reported by Lucksch. Intestinal lesions were absent in the three other fatal cases.

The absence of proliferation and phagocytosis in the lymph nodules, which Mallory has shown to be the characteristic intestinal changes in typhoid fever, as well as the absence of any involvement of Peyer's patches in paratyphoid fever indicate, as the authors state, that there is some essential if obscure biological difference between the typhoid and paratyphoid bacilli.

The anatomical picture of paratyphoid fever is that of a septicemia associated with splenic enlargement and occasionally with non-specific ulcers in the intestine.

THE GENESIS OF BLOOD PLATES.

The opinion held by many pathologists that blood plates are products of red blood corpuscles is largely based on the observations of Wlassow made in Ziegler's laboratory some years ago. This investigator found that when blood was treated with a solution of mercuric chloride (saturated aqueous solution of mercuric chloride 10 parts, distilled water 50 parts) there were quickly formed from the erythrocytes red bodies with sharp outlines which gradually became transformed into colorless structures resembling blood plates. Other reagents acted similarly on the erythrocytes. Wlassow observed that these bodies like the blood plates were stained with certain aniline basic dyes and he regarded the two as identical and claimed that this experiment showed that the blood plates are not independent cellular elements of the blood but are formed from the erythrocytes.

Sacerdotti[2] states that the bodies described by Wlassow are not blood plates and morphological differences exist between the two struc-

* H. Morris. Surgical Diseases of the Kidney and Ureter. London. 1901, Vol. 11, page 530.

[1] Journal of Infectious Diseases, 1904, i, p. 72.

[2] Anatomischer Anzeiger, xvii, p. 249.

tures, although they appear similar at the first glance. The little knobs on the erythrocytes are never flattened, while the blood plates are flat. The former are homogeneous and frequently tinged with hemoglobin and thereby differ from the blood plates which present a granular appearance and are always colorless. Another difference was shown by treating a microscopical preparation prepared by Wlassow's method with a dilute solution of acetic acid, preferably a 5% solution. The small globular knobs and the red blood corpuscles vanish while the blood plates remain and their granular appearance becomes more distinct.

Sacerdotti performed another experiment. He defibrinated blood, in order to remove all the blood plates and then mixed the blood with sublimate solution. After the small globular bodies were formed acetic acid was added. The erythrocytes and globules disappeared and nothing remained which bore any resemblance to blood plates. If the action of the acetic acid was studied under the microscope it was seen that Wlassow's globules first swelled, gradually paled and finally disappeared. The erythrocytes were more resistant and for a time a crater marked the site of the dissolved knob. With such differences in form and nature existing between Wlassow's bodies and the plates, how can the view be entertained, says the author, that the blood plates are derived from the erythrocytes?

Schneider [3] under Arnold's direction has repeated Sacerdotti's experiments. When a drop of blood is mixed with Wlassow's fluid changes in the erythrocytes occur with great rapidity. At the moment of contact the erythrocytes become smaller and globular. They lose their elasticity entirely and appear completely fixed. A few of the fixed elements appear as bell-shaped bodies with a concavity on one side. The author does not agree with Weidenreich that the normal form of the erythrocytes is bell-shaped. The majority of the erythrocytes appear as spherical structures. A portion of many of the corpuscles is finally granular and colorless or faintly tinted with hemoglobin. The chief mass of the hemoglobin is collected at the other pole of the erythrocyte where the peculiar little knob is attached. This little body is usually spherical. If two are present they are rarely of equal size. They vary from one fifth to one third of the size of the erythrocyte. Most of the bodies contain hemoglobin and are homogeneous. Transitions were seen between these and quite colorless, slightly granular forms. Some were only attached to the erythrocyte by a thread-like connection, but no free bodies were seen, such as Maximow has described. Schneider calls attention to the fact that both Wlassow's bodies and blood plates stain similarly with methyl violet and gentian violet. But he agrees with Sacerdotti that the plates resist the action of dilute acetic acid while the structures formed from the erythrocytes by the mercuric chloride solution are quickly dissolved. Schneider points out that red blood corpuscles have been shown to contain nucleoid material and he asserts that a part of the erythrocyte is not dissolved by the acetic acid but remains as a shadow and concludes from this that Sacerdotti's experiment does not prove that blood plates cannot be formed from the erythrocytes.

On agar preparations, prepared by Deetjen's method and containing 2 to 10% Na Cl, the author states that blood plates are formed in large numbers from the red blood corpuscles and that some resist acetic acid. As the result of his studies he concludes that the blood plates are not independent cells but simply cell derivatives. The great majority of the plates of normal blood according to Schneider arise from the erythrocytes, but some are derived from the leucocytes. Most of the plates possess nuclear substance, which can be demonstrated by certain staining methods and the nuclear substance is the cause of their resistance when brought in contact with dilute acetic acid.

[3] Virchow's Archiv., 1903, clxxiv, p. 294.

AN EXPERIMENTAL STUDY OF THE SO-CALLED FATTY DEGENERATION.

Fischler [4] arrives at the following conclusions based on a study of the fat in kidney infarcts experimentally produced in rabbits.

The appearance of visible fat in cells, as well in the so-called fatty degeneration, as in fatty infiltration is dependent not alone upon a certain condition of the cell, but upon factors outside of the cell.

Some circulation must be maintained although it need not be complete, of the blood, lymph or diffusion stream, or fatty metamorphosis will not occur.

The most essential condition for the appearance of fat is the life of the cell. Dead cells do not undergo fatty metamorphosis. The experiments summarized in this study add nothing to the support of the theory that fat can originate from the cell proteids. Without doubt the presence of fat within the cell can be due to a great variety of conditions.

THE DIAGNOSTIC VALUE OF BLOOD CULTURES.

Hecktoen [5] records a case in which the concurrence of scarlet fever and typhoid fever was observed. The patient was suddenly taken ill with nausea, headache and pain in the limbs. Deglutition became difficult and painful. On the day following the onset a rash developed on the neck and body and spread to the face and extremities. When admitted to the hospital on the fourth day of the disease there was a deep subcuticular flush with raised points. The tongue had the "strawberry" appearance seen in scarlet fever and the tonsils were swollen. A culture from the blood made the next day yielded a pure growth of the typhoid bacillus and the blood gave a positive Grünbaum-Widal reaction. Typical scarlatinal desquamation occurred. The temperature fell to normal about the twenty-first day. The clinical features seem distinctive

[4] Virchow's Archiv., clxx, p. 100.
[5] Medical News, 1903, lxxxiii, p. 580.

of scarlet fever but, as the author admits, absolute evidence as would be furnished by the demonstration of the causative agent is lacking. The occurrence of desquamation is regarded as strongly supporting the diagnosis of scarlet fever. Two cases of typhoid fever associated with early angina and erythema were observed in which there was no exfoliation. In both instances the typhoid bacillus was obtained from the blood during the first week. The author emphasizes the almost constant presence of the typhoid bacillus in the blood in the early stages of the disease and the importance of blood cultures to settle promptly the diagnosis of typhoid fever in such puzzling cases as the ones reported.

OBLITERATION OF THE SUPERIOR VENA CAVA.

Although compression of the superior vena cava is not very uncommon in cases of aortic aneurism and mediastinal tumors, instances of complete obliteration of the vessel with the establishment of collateral circulation are, according to Osler,[6] very rare. In a search of the literature he found only twenty-nine cases of complete obliteration of the superior vena cava.

I. Thrombosis due to disease within the vein, 10 cases. Simple phlebitis seemed to have been the cause of the thrombus formation in 8 of these; one was a propagated thrombus from the periphery (Duchek), and one was due to tuberculous endophlebitis (Banti).

The majority of the cases belonged in the second class.

II. Disease outside of the vein, 19 cases, grouped as follows: (*a*) tuberculosis, 4 cases; (*b*) mediastinitis, 4 cases; (*c*) aneurism, 4 cases; (*d*) syphilis, 3 cases; (*e*) periaortitis, 2 cases; (*f*) carcinoma, 1 case; (*g*) fibroma, 1 case.

Osler divides the cases clinically into two groups. In one group after years of completely effected collateral circulation and good health the symptoms set in acutely. In the other group the symptoms of venous obstruction are constantly present although the individual may enjoy a fair measure of health.

Osler reports an instance of occlusion of the superior vena cava from compression by enlarged mediastinal lymph nodes in Hodgkin's disease and another case in which the diagnosis of fibroid obliteration of the superior vena cava was made during life. The second case presented many interesting and unusual features. When first seen the patient complained of dyspnea and swelling of the neck. There was gradual distention of the superficial thoracic and epigastric veins. The case was regarded during the first year as probably one of intra-thoracic tumor, but the absence of all signs of aneurism and of enlargement of the lymph nodes, the negative result of the x-ray examination, the slow course of the disease, led to the correct diagnosis. Symptoms of phthisis pulmonum developed and tuberele bacilli were found in the sputum. At autopsy the left jugular, both innominate veins, and the upper portion of the superior vena cava were found converted into a dense thick cord. The superior vena cava was patent within the pericardium from the point where it received the dilated azygos vein to the heart. There was tuberculous caries of the last cervical and the two upper thoracic vertebræ. The fibrous tissue about the diseased portion of the spine was continuous with that about the innominate veins.

[6] Bulletin of the Johns Hopkins Hospital, 1903, xiv, p. 169.

THE RELATION OF MYELIN TO FATTY METAMORPHOSIS.

According to Kaiserling and Orgler,[7] myelin drops resemble fat morphologically only. They are stained light gray by osmic acid, never coloring as intensely as fat. With sudan III and scharlach R they assume a red hue. The osmic acid preparations of myelin, unlike fat, are decolorized by xylol, chloroform and oil of bergamot. They differ from fat in being double refractive. In hardened tissues the double refraction of the myelin is lost. These myelin droplets were found in fatty metamorphosis of the cells of intima of arteries, particularly the aorta, in an amyloid kidney, and a great white kidney of chronic Bright's disease, in the epithelial cells of the pulmonary alveoli, in pneumonia and tuberculosis, and in the bronchial secretion, also in the corpus luteum of the ovary and in the cortex of the adrenal and the retrogressive metamorphosis of the thymus gland.

Myelin granules were not found in the heart, in fatty infiltration of the liver, in the normal fat deposits of the body, in colostrum, in functioning mammary glands, or in four cases of fatty metamorphosis of the kidney.

Schmidt and Muller obtained from the myelin drops of the sputum protargon, a highly complex body, but not a fat. By the breaking up of protargon, lecithin and cerebrin are formed.

ORIGIN OF EOSINOPHILIC LEUCOCYTES.

Opie[8] has made an experimental study of the eosinophile cells in the blood and tissues of guinea pigs and the relation of these cells to nutrition. This investigation lends support to Ehrlich's view that the eosinophiles are derived wholly from the bone marrow.

In the mucosa of the intestinal tract and air-passages and in other tissues of the guinea pig occur eosinophilic polymorphonuclear leucocytes identical with those of the blood. In the bone marrow alone mononuclear eosinophiles are found. These undergo mitosis, and transition forms between them and the eosinophiles of the blood can also be demonstrated in the bone-marrow. When the eosinophiles of the blood become increased the number of eosinophilic myelocytes was far greater than normal and proliferation of these cells was more active. The blood vessels of tissues in which accumulation of eosinophiles occurred contained in certain instances a demonstrable increase in the eosinophile leucocytes.

[7] Virchow's Archiv., clxvii, p. 290.
[8] American Journal of the Medical Sciences, 1904, cxxvii, p. 217.

Starvation caused a diminution in the number of eosinophiles in the blood. A temporary loss of weight was accompanied by an increase while a gain in weight led to a decrease of the eosinophiles.

THE PRIMARY ACTION OF THE TUBERCLE BACILLUS.

Baumgarten has maintained that the production of miliary tubercles and diffuse tuberculous tissue is the result of a direct irritation by the tubercle bacillus of the fixed cells of the part. This irritation causes the cells to proliferate.

According to Weigert's well-known theory such an explanation would not be tenable. The cause of the proliferation of the cells should be sought rather in an injury to the tissue which removes the inhibitory force that normally holds in check the power of growth of the cells. Neither Baumgarten nor the other writers have concerned themselves with the existence of such a primary injury.

Wechsberg [9] studied this problem in Weigert's laboratory. Suspensions of tubercle bacilli were injected into the ear veins of rabbits. The animals were killed at different periods ranging from six hours to twelve days and the lungs hardened and sectioned.

At the end of six hours the blood-vessels showed in places a loss of their endothelium as well as a marked destruction of their elastic fibers. Groups of bacilli lay in the lumina of the vessels surrounded by polynuclear leucocytes. After twenty-four hours epithelioid cells were found. The destruction of elastic tissue was the more extensive the longer the duration of the infection.

Wechsberg concludes that the tubercle bacillus destroys the fixed cells and the intercellular tissue by its toxic action. It then injures the new formed cells so that they are unable to produce connective tissue and blood-vessels. The formation of giant cells indicates that the protoplasm of the proliferated cells is only injured in part. Finally the new formed cells become entirely destroyed and the stage of caseation is reached.

Recently an elaborate monograph on the mode of action of the tubercle bacillus has been written by Herxheimer,[10] one of Weigert's assistants. It is, in a sense, a continuation of the study begun by Wechsberg. Tubercle bacilli suspended in fluid were injected into the trachea of rabbits and guinea pigs. The animals were killed at different intervals, from one-half hour to seven weeks after the injection. The staining method, which gave the best results, was a combination of Weigert's elastic tissue stain and anilin-water-methyl-violet. The tubercle bacilli were colored blue and stood out sharply upon the red background.

(1) Stain the sections in lithium carmine several minutes.

(2) Differentiate in 1% hydrochloric acid alcohol several hours.

(3) Stain in Weigert's elastic stain one hour.

(4) Wash rapidly in acid alcohol.

(5) Differentiate quickly in 96% alcohol.

(6) Stain in anilin-methyl-violet several hours in the cold.

(7) Differentiate in acid alcohol and in 96% alcohol.

(8) Dehydrate in absolute alcohol.

(9) Clear in xylol.

(10) Mount in balsam.

In order to remove the violet color from the celloidin, the sections after treating with absolute alcohol were dipped in an alcohol-ether mixture which dissolves away the celloidin.

The bacilli, as soon as they reached the lung, were taken up by epithelial cells lying free in the alveoli and by cells still attached to the alveolar wall. Desquamation of the epithelial cells soon followed the ingestion of the bacilli. At the same time the bacilli exert a destructive influence upon the elastic fibres. A result of the injurious action upon the cells and the intercellular substance is a proliferation of the fixed elements, a growth of epithelium occurs as well as of endothelium and connective tissue cells.

TUBERCULOSIS CONVEYED BY BOOKS.

A careful study has been made by Mitulescu [11] in Koch's Institute in regard to the possibility of the spread of tuberculosis by means of library books. A large number of old, soiled books, chiefly works of fiction, were examined. Of the books which had been in use over two years, one third were infected with tubercle bacilli. The pages were frequently stuck together by filth and the retained moisture prevented the tubercle bacilli drying. On clean paper drying quickly killed them. None of the books in use less than two years harbored tubercle bacilli, and the covers of the infected books were free from these microorganisms. The presence of the tubercle bacilli was determined by inoculating guinea pigs. The pages and covers of the books were thoroughly cleaned with saline solution, the washings centrifugalized and the sediment injected into guinea pigs.

CHRONIC MYOCARDITIS IN CHILDREN.

Acute myocarditis may develop into chronic myocarditis, or the latter condition may develop independently of the acute process. The acute infectious diseases are the most frequent cause of acute myocarditis, and on account of the greater frequency of these diseases in children, acute myocarditis is more common among them than adults. But it is far from common, even among children. In the autopsy records of the Children's Hospital in Vienna during the last ten years are only five cases of acute myocarditis; three followed diphtheria, two occurred after apparently trivial superficial ulcerative processes, in which other signs of sepsis were lacking. Observations at the bedside indicate that acute myocarditis, especially after diphtheria, is not rare, and recovery occurs even from the

[9] Ziegler's Beiträge, 1901, xxix, p. 203.
[10] Ziegler's Beiträge, 1903, xxxiii, p. 363.
[11] Zeitschrift fur Hygiene, 1903, xliv, p. 397.

severe forms. Under what condition chronic myocarditis is established we do not know, but it is certainly one of the rarer diseases in childhood, and plays a far less important rôle than in the cardiac pathology of adults. This is probably due to the freedom from arterio-sclerosis which so frequently in later life cripples the power of the heart; and chronic alcoholic intoxication, with its resulting injury to the heart, rarely has to be considered.

Two cases are reported by Zuppinger.[12] In the first, signs of acute myocarditis developed during diphtheria, and death occurred from chronic myocarditis six weeks later, with symptoms of cardiac insufficiency. The left ventricle measured 2 cm. in thickness. It was dilated and in the wall were many areas of fibrous tissue. In the second case there was great hypertrophy and dilatation and a mural thrombus was situated at the apex of the right ventricle. At this point the wall contained fibrous tissue, but it was not demonstrable elsewhere. The boy aged ten had an attack of measles four years before and pneumonia one year after the measles.

THE NATURE OF PERNICIOUS ANEMIA.

Bloch[13] has been able to add no experimental evidence in support of the modern theory, so widely held, that pernicious anemia is the result of absorption of toxins from the alimentary tract. Injection of fecal extracts into animals caused only slight anemia. A special toxicity of the urine or blood serum in pernicious anemia could not be demonstrated.

The buccal lesions which Hunter regards as an etiological factor are secondary to necrosis from subcutaneous hemorrhage and hence without significance.

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated meeting, March 14, 1904. The President, Thomas E. Satterthwaite, M.D., in the chair.

Dr. Robert Coleman Kemp read a paper entitled

OBSERVATIONS ON DILATATION OF THE STOMACH AND ON GASTROPTOSIS,

which was illustrated by colored diagrams made from forty cases in the Manhattan State Hospitals, Ward's Island. It had unfortunately too often been the habit, he said, to depend on the examination of the stomach contents alone, and to neglect the investigation of the motor functions and the position of the stomach itself. The latter is necessary in order to arrive at a correct prognosis and undertake proper treatment.

Atony of the Stomach. — This must necessarily first occur before dilatation of the stomach is produced. Atonia gastrica may be defined as a loss of tone or contractile power in the muscles of the stomach, so that the organ becomes distended and does not contract about its contents, with a resulting motor insufficiency. While the dilatation of the stomach in gastroptosis is disputed by some, his own observations have shown that dilatation does exist, and with it, necessarily, a varying degree of motor insufficiency.

Dilatation of the Stomach. — Boas has demonstrated that an apparently dilated stomach may really be in a condition of compensatory hypertrophy. It may, therefore, be stated that as long as the functions of the organ are normal, the condition met with cannot be regarded as pathological. In dilatation the lesser curvature maintains in general its relation to the diaphragm, and this is the differential point between dilatation and gastroptosis. A number of forms of acute dilatation have been described. The first is the result of acute inflammation of the gastric mucous membrane. It is uncertain whether it depends on pyloric spasm or paralysis of the gastric muscles, or on both these causes. The second is a post-operative dilatation, following abdominal section especially. It would seem to be due to some shock of the sympathetic system, either from the operation or the anesthetic, or possibly, later, from uremia or sepsis. Among the other types of acute dilatation mentioned were the following: In typhoid fever; during attacks of migraine and just preceding epileptic seizures in certain instances; during the course of pneumonia and other pulmonary diseases; in convulsions in infants and young children from over-loading the stomach; in attacks of pseudo-angina pectoris from indiscretions in diet.

Chronic Dilatation. — Over-feeding and chronic indigestion are undoubtedly causes of dilatation of the stomach in infants and young children. Holt believes intestinal putrefaction exciting convulsions in young children to be an important factor in the production of epilepsy. Dr. Kemp regards acute dilatation of the stomach with convulsions as an equally powerful factor, when frequently repeated, in producing the convulsive habit, and thinks that some cases of epilepsy can certainly be attributed to this cause. Moreover, chronic dilatation of the stomach is itself one of the causes of intestinal putrefaction and disturbance. Among other etiological factors of chronic dilatation are chronic gastritis, atony of the stomach, rapid bolting of food, spasm of the pylorus due to gastric ulcer, and benign and malignant pyloric stenosis. Each case should receive the special treatment called for by the existing condition. Dr. Kemp washes out the stomach often only in cases in which there is chronic gastritis with the production of considerable mucus, or where there is much retained food with fermentation.

Gastroptosis. — If gastroptosis exists, some enteroptosis necessarily accompanies it. The determination of the position of the stomach, in order to secure the best kind of treatment, is of great importance, and trans-illumination of the stomach he considers the ideal method for accurate diagnosis. The treatment consists in the following measures:

(1) The correction of the functional derangement of the stomach by appropriate diet and medication.

(2) Regulation of the bowels.

(3) Mechanical support to increase the intra-abdominal tension, such as (*a*) various silk abdominal supporters; (*b*) bandages (as the Van Valzah-Hayes method); (*c*) Gallant's corset; (*d*) Rose's plaster belt. He had seen some brilliant results from the last named. Recently he had employed for this belt rubber plaster and moleskin. The sweat evaporates through it on account of its loose texture, and it can be worn for quite a long time with practically no irritation.

Cases at the Manhattan State Hospitals, Ward's Island. — The drawings Dr. Kemp presented were made from forty epileptics in these institutions. The anatomical regions were marked out in blue pencil

[12] Archiv. fur Kinderheilkunde, 1903, xxxv, p. 381.
[13] Deutsches Archiv. fur klin. Medizin, lxxvii, nos. 3 and 4.

on the abdomen of each case, and during trans-illumination of the stomach the outlines of the organ were drawn in color. These markings were reproduced in the diagrams shown. Thirty-four of the patients were females. In 16 there was gastroptosis, in 16 dilated stomach, and in 2 the stomach was in normal position. In the 6 males there were 5 dilated stomachs, while in 1 the stomach was in normal position.

Comparative Methods of Locating the Position of the Stomach. — Having stated that the standing posture was in general the most favorable for examinations, he spoke of changes in the position of the stomach due to ingesta. In the books it is stated that the empty stomach lies for the greater part of its extent beneath the ribs on the left side, entending a short distance below them, that when partially full it descends midway between the ensiform process and the umbilicus, and that when full it comes to within a few finger breadths of the umbilicus. All this is true when the subject is in the dorsal position, since the suspensory ligaments of the stomach are relaxed, and as the organ fills up it gradually gravitates downward. In the standing position, however, as can readily be shown, the stomach, even when empty, at once descends to the full length of its suspensory ligaments, and its lower border is as a constant level, or within almost an inch of the same, whether the organ be full or empty.

The Stomach Whistle. — To demonstrate this Dr. Kemp devised a simple instrument known as the "stomach whistle," which consists of a rectal tube of small calibre with a whistle in the end. To it is attached an ordinary aspiration bulb without valves. The tube is inserted, the finger placed over the open end of the bulb, and a single bulb-full of air forced into and aspirated out of the stomach by short and intermittent contractions. This entirely eliminates the possible chance of distending the stomach with air, and the organ remains practically empty. A stethoscope is placed over the abdomen, and the point of greatest intensity of sound is marked by a cross with a colored pencil. The tube is pushed in and out, and various points of sound are marked. The lowest is the lower border of the stomach. If gastro-diaphany is then performed, it will be found that the lower margins absolutely correspond. This is also a further evidence of the accuracy of the latter method.

Various methods of locating the stomach were tried on the same cases and, as a check, trans-illumination was employed as the last procedure in each instance. (1) Inspection was tried many times, but without success. (2) Carbonic acid gas often failed, and it was found impossible to regulate the amount of gas produced by the sodium bicarbonate and tartaric acid. (3) By administering small quantities of these drugs, with the patient standing, it is possible in a certain number of cases to map out approximately the lower margin of the stomach by listening with the stethoscope to the sound of the effervescence. (4) Inflation with air is advised by many authorities. The method may, however, sometimes cause great discomfort. It is liable to overdistend the stomach, and may even be a source of danger. On many occasions what was apparently stomach becoming protuberant on the abdominal wall was shown by trans-illumination to be intestine forced out laterally and forward by the stomach. (5) Simple percussion in various positions. (6) Auscultatory percussion. (7) Reichmann's auscultatory percussion rod. (8) Inflation with water seems to be a fairly good method, as it is easier to differentiate between dulness and tymphanites than between the different forms of tymphanites. (9) Inflation of the intestines with air is inaccurate. If water is employed, it acts as an enema. (10) The ideal method is trans-illumination, originally devised by Einhorn. As an improvement in technique Dr. Kemp has of late employed fluorescent media. By means of these he has found it possible to trans-illuminate the stomachs of fat subjects, which were formerly unsatisfactory, and, in general, the trans-illumination is increased nearly one half. As a matter of scientific exactness Dr. Kemp suggested the infusion of radio-active saline solutions into animals and also their hypodermatic use. The experiments made, however, showed no results from the standpoint of physiological medicine, and at present he felt that such solutions have no therapeutic value whatever.

THE CONSULTANT'S POINT OF VIEW.

DR. WILLIAM H. THOMSON said that on account of the limited time at his disposal, he would confine his remarks to the relations of the stomach to certain auto-infections which seem to be chiefly caused by changes in the tone and motility of the stomach walls, which changes appear to be closely connected with the etiology of some common nervous derangements. In the first place, he thought it might safely be assumed that when a nervous disorder is intermittent in its attacks (the patient being in the intervals quite free from any of its symptoms), the disease is one due not so much to a neurosis as to a toxemia, since it is only toxemias which furnish us with examples of the curious phenomena of intermittency in nervous symptoms. Thus the poison of a uremia kind may be present in the blood for many days before we have the sudden explosion of uremic convulsions, while attacks of gouty asthma develop only now and then, though the blood state which occasions them may have been long present. So he had no doubt that the great majority of the attacks of epilepsy are primarily due to, and are manifestations of, a toxemia. Nervous symptoms dependent upon organic changes in nerve tissue are never intermittent, and while it is true that in some cases of epilepsy there is a persistent source of irritation in the form of an organic intra-cranial change produced by traumatism or by some analogous cause in the form of a localized lesion on the brain surface, yet even here the attacks are intermittent, which could not possibly be the case if the traumatic irritant were the sole and primary cause of the epilepsy. In any affection which is the result of true organic lesion in nervous texture the resultant symptoms never really intermit, however much they may remit in the degree of their manifestation. Therefore, even in traumatic epilepsy something else besides the standing local irritation is required to develop the convulsive paroxysm, and that something is most certainly one of the forms of toxemia.

He had no doubt that toxemia alone suffices to cause most of the attacks in so-called idiopathic epilepsy, and that our progress in the understanding of this most serious disease and its treatment will be chiefly along the lines of the demonstration of blood poisons, their origin and nature, and how best to counteract them. He believed that in time a case of prolonged epilepsy may acquire an organic basis, on the general principle that every nervous function which is not original to the cerebral cortex, but is acquired, has an anatomical basis there after the function has been acquired. Having illustrated this by a reference to the great cortical function of speech, he said that the well known facts in regard to this prove that the brain cortex is peculiarly plastic to repeated excitation of the same kind, so that in time it thereby becomes anatomically organized to subserve certain functions. He did not see, therefore, why we should not infer that every specific cortical function is similarly organized by habit.

Now apply this principle to nervous pathology. In the brain-training period of life, that of childhood, when the cortical centers are being organized by habit to perform specific functions, an abnormal or diseased habit is being contracted by the special and selective operation of some blood-poison on a special cortical area. All nerve-poisons are characterized by their selective properties. There is no one of them which acts on the whole nervous system; even the most widely acting of them affecting only certain nervous functions. Hence it is only consistent with general law that some poison, habitually formed and habitually charging the blood, may in time, by repeatedly acting on the same cortical area, finally cause an anatomically organized area of morbid activity, without the need of postulating any congenital malformation to account for this morbid habit, as has been done by Dr. M. A. Starr. While not denying that congenital malformations may in some instances be the origin of epilepsy, it may be inferred that the great majority of epilepsies are acquired, rather than congenital, and acquired most easily at the time of life when nervous habits of all kinds are most easily acquired, namely, childhood. Hence the extreme practical importance of preventing epileptic attacks from becoming habitual, and, in order to accomplish this, of making every possible effort to discover the exciting causes of the attacks.

No one can doubt that one of the most common of these exciting causes has its origin in auto-infection, especially from the gastro-intestinal tract. Dr. Thomson said his criticism of the current views of the mechanism of an epileptic attack was that it is looked upon as a primary discharge of cortical motor cells. But no motor cell ever discharges itself; it is invariably in response to some afferent excitation, first, that any such discharge can occur. So, the beginning of an epileptic attack is always on the afferent side; and when we seek for causes of undue afferent excitability it is only in toxemias that we find the most conclusive illustrations. Having cited the phenomena observed in tetanus and strychnine poisoning, he said these facts had led him to attach great importance to every means which will enable us to be more precise in our examination of the organs most concerned in causing auto-infection. Gastric atony and dilatation, for example, always imply not only deficiency of muscular power, but also qualitative changes in the normal gastric secretions; and we should never forget that, besides this primary function to cause digestion, all digestive secretions are powerful antiseptics, so that deficiency or perversion of these, of itself, disposes to self-poisoning. He had taught for years, and was criticized for doing so, that the sensory disorder migraine was not due to a neurosis, but to a toxemia; and it was a satisfaction to find now that it too is definitely connected with changes in the stomach walls which our modern methods of exploration enable us definitely to recognize. All measures, therefore, which improve our means of diagnosis he welcomed from the general standpoint of the practitioner, who has to prescribe not only for stomach and intestinal disorders, but for a great variety of derangements in distant organs, such as neurasthenia, melancholia and epilepsy — not to mention various painful affections, from neuralgia to so-called muscular rheumatism, whose origin after all is generally due to perversions in the functions of the great food channels of the body.

GASTRO-DIAPHANY (TRANS-ILLUMINATION OF THE STOMACH).

DR. MAX EINHORN said that in practicing gastro-diaphany it was advisable to have the stomach empty, except for a glassful or two of water. The great advantage of this method is that it affords an opportunity of examining the stomach in the natural state, and not when it is over-filled or is abnormally distended with gas. A great many mistakes have been made in consequence of the over-distention of the organ with gas produced by effervescing mixtures. This method is also attended with some dangers, and a death has been reported from it. By the use of gastro-diaphany the examiners can observe not only the area of the water, but also the outlines of the stomach. It is undoubtedly a good method, but it is rather an elaborate one, requiring a dark room, an electric battery and a special apparatus. It is particularly serviceable for gastroptosis and when tumors are present. When there is a tumor, we can by means of it determine upon which curvature of the stomach the growth is situated. In some instances also we are able to discover the presence of a tumor which is not as yet distinguishable by palpation. Dr. Einhorn, however, did not think gastro-diaphany should replace other methods. For the general practitioner the most servicable method is the production of a splashing sound when the stomach is partly filled with liquid. This, he believes, affords the most accurate means at our disposal of ascertaining the situation of the stomach and also the outlines of the organ. He would, therefore, place it first as a means of diagnosis.

DILATATION OF THE STOMACH

was discussed by DR. GEORGE R. LOCKWOOD, who said: If a stomach in the morning fasting state habitually contains food remains, or if it contains according to our present lights an amount of gastric juice exceeding 100 cc., it may reasonably be assumed that pyloric obstruction exists, no matter what the actual size of the stomach may be. The main thing is that the stomach is unable to properly empty itself — the actual size of the organ has nothing at all to do with it and affords only corroborative evidence. We find large stomachs that are not to be considered "dilated," since they are adequate in a muscular sense and empty themselves as they should. We also find stomachs of normal or diminished size which are muscularly inadequate and do not empty themselves as they should. Such is usually the case with pyloric cancer. They may be regarded clinically as dilated stomachs, although they are not dilated. The term dilatation is therefore an unfortunate one. If we regard the term as synonymous with "pyloric obstruction" or "motor inadequacy" we will not go so far astray.

To determine absolutely the actual size of the stomach we need to locate the lower curvature, the upper curvature, and the overlapping of the stomach area to the right of the median line. The lower curvature can be readily made out in the great majority of cases. The results of gastro-diaphany have to me been most misleading, and I have of late excluded the method from the list of available means for diagnosis and have placed the gastro-diaphane on the same shelf as the sphygmograph — agreeable playthings, to show to students, but not of practical value. Boas' test of passing a stiff tube and palpating it as it lies along the greater curvature is apt to be misleading, as the stiffness of the tube, as used by Boas, is calculated to depress the lower curvature and make it seem lower than it really is. Such a procedure, moreover, is not devoid of danger. To me the most accurate results have been by inflation, combined with palpation and inspection; next in order of value is the area of succussion sounds obtained. With an oblique light

shining back of the recumbent patient, the shadow outline can usually be distinctly seen. If the upper curvature is not observed descending on inspiration, with the respiratory descent of the greater curvature, the diagnosis of an enlarged stomach can be made with reasonable certainty, and gastroptosis excluded. Inflation should regularly be practiced by pumping air into the stomach through a tube, and not by the use of effervescing powders. In cases where such an inflation is inadvisable, a moderate inflation by effervescing powders may be made, and light percussion, preferably by auscultatory stroke percussion, employed. By noting changes in note before and after such inflation, colon tympany need not be mistaken for gastric. The area over which succussion sounds are heard affords very reliable evidence as to the position of the lower curvature. This sign is fairly accurate, provided there be no liquid in the transverse colon. Tapotement in the cecal region will determine this point. The absence of succussion means very little, as tympanitic distention of the stomach with gas may cause the succussion sounds to absolutely disappear. It is not the place here to enter into a discussion of the value of succussion as a sign of atony; it is sufficient to call attention to its usefulness as a test for the location of the lower curvature.

In normal cases the gastric tympany rarely extends beyond 6 cc. to the right of the median line. An extension of this tympanitic area to 8 cc., or more, to the right affords fair presumptive evidence of enlargement. The detection of the upper border of a normally located stomach is almost an impossibility. Consequently the exact vertical dimension can rarely be determined. The estimation of the exact size is further rendered difficult by displacement downward of a dilated stomach, which so frequently occurs, or its assumption of the vertical position. As a further aid to diagnosis I would call attention to the significance of the enteroptotic habit. If the costal angle is less than 90°, if the right kidney be palpable, if the liver and colon are not displaced, the location of the lower curvature of the stomach is of no diagnostic value whatever. The mistakes in diagnosis, to my mind, depend on two errors: (1) In basing a diagnosis on the location of the greater curvature alone, forgetting that it might be a gastroptosis alone, or a displacement co-existent with a dilatation. (2) In making a diagnosis of dilatation from the size of the stomach alone; the sole sign of dilatation that is accurate being the detection of food remains or of contained secretion in a fasting stomach. No diagnosis, therefore, can be made without careful and, if necessary, repeated examination of the gastric contents in the fasting state.

GASTROPTOSIS

was discussed by DR. ACHILLES ROSE. He thought the term "gastroptosis" unfortunate, and preferred "gastroptosia," which, correctly translated, means abdominal ptosis, not necessarily ptosis of the stomach alone. The word "gastroptosia," he said, was a good term, for all writers appeared to agree that there is, as a rule, not one abdominal organ alone descended, although one may be more displaced than the others. Gastroptosia also had the advantage of including the relaxation of the abdominal walls. He explained that a feminine noun which ends in *sis*, *psis* or *xis*, as the second component, remains unchanged when the first component is a preposition, as, for instance, proptosis, periptosis, diagnosis; but if the first component is not a preposition, then in composition the ending is changed into *ia*, as apraxia, eupraxia, hierognosia. The tone, the activity of the abdominal muscles, aids in retaining the abdominal organs in their physiological position. Relaxation of this apparatus forms a factor in gastroptosia, and it is the first factor we have to consider in therapy. Gastroptosia is identical with relaxation, or, what means the same, atonia. Gastroptosia is atonia gastrica. Those who have used the latter term in the sense of motor insufficiency of the stomach have caused much confusion, since atonia gastrica may exist without motor insufficiency. Motor insufficiency is the disproportion between the capacity of the muscular forces of the stomach and the demand on these forces for labor. Such insufficiency may occur under certain circumstances in a healthy stomach, as when the mass of the ingested food is too large, or the nature or condition of the ingesta unsuitable. Atony may cause insufficiency, or, in turn, may be caused by insufficiency; but it may exist without insufficiency when the resistance at the pylorus is subnormal.

Gastroptosia is never present without dilatation. Gastroptosis depends on relaxation, and relaxation of the fibers of muscles means elongation of the fibers; therefore relaxation is, *eo ipso*, dilatation. Of practical importance is the relation between gastroptosia and gastric and nervous symptoms. It is now generally recognized that many cases which were formerly classified as neuroses are instances of gastroptosia with gastric and nervous symptoms. All forms of anomalous gastric secretion may be associated with gastroptosia, and, as the very exact investigations of Dr. Graham Rogers in the Manhattan State Hospital have demonstrated, relief from anomalous secretions and motor insufficiency may promptly ensue after gastroptosia has been relieved.

In the treatment of gastroptosia the principle to be kept in view is relief from relaxation, and, first of all, from abdominal relaxation, by means of mechanical support of the abdominal walls. This can best be given in most instances by strapping in the way that has been suggested by Dr. Rose. Very often strapping alone, without any other treatment, will restore the secretory and motor functions of the stomach to a normal state. He did not mean to say that medical treatment was to be excluded in any case, but without the mechanical support all medical treatment might prove unavailing. Gastroptosia may play a part in diseases of the organs of respiration and circulation. In illustration he quoted a case reported by Dr. Groddeck of Baden Baden, in which an elderly gentleman with organic heart disease, who had for years suffered from attacks of vertigo and unconsciousness, was successfully treated by proper attention to his enormously distended abdomen. The reduction of the size of the belly, although it did not of course cure the diseased myocardium, was followed by cessation of the attacks mentioned. The size, the weight, of the belly having been reduced, the work of the heart was materially relieved, relieved to such an extent that even the imperfect contractions were sufficient to supply the brain with the necessary quantum of blood. Dr. Rose said he could cite just as striking examples from his own practice, or he might refer to a patient he had seen under examination before a medical society. Everyone present studied the auscultatory and percutory signs, but not a single physician took notice of the most remarkable pronounced gastroptosia existing. They all spoke of various remedies to improve the circulation, but not one had an idea of the most important of all the remedies called for in the case, the support of the abdomen. Mangelsdorf found that every attack of migraine was accompanied by acute dilatation of the stomach and that repeated attacks of the disorder led in the course of years to permanent change in the tonicity of the stomach. He also discovered that a relation existed between

epilepsy and gastroptosia. Many observations during the last few years have shown that gastroptosia deserves much greater consideration than has been accorded to it.

THE SURGEON'S POINT OF VIEW.

Dr. George E. Brewer said the cases for operative interference could be divided into three classes: (1) Malignant disease. (2) Benign disease, such as ulcers and, very rarely, tumors. (3) Spasm, when surgical, rather than medical, aid is required; the condition having gone beyond the point when efficient relief can be afforded by medicinal remedies or mechanical support. In gastric ulcer it is universally conceded that one of the most essential requisites of successful treatment is rest, and there can be no question that in many instances a gastro-enterostomy affords an opportunity for the healing of the ulcer better can than be secured in any other way. The spasmodic conditions produced by ulcers can also be promptly remedied by surgery. The operations for the relief of the various forms of benign disease show a very low rate of mortality. In conclusion Dr. Brewer made a suggestion as to the importance of the early recognition and early surgical treatment of dilatation in the "cancer age." We are now, he said, making much earlier diagnoses of carcinoma than formerly. This is largely due to laboratory methods; but even these do not give us the diagnosis in time to do a really radical operation. Whenever, therefore, a person at the cancer age has a sudden onset of digestive trouble, or a sudden increase in such trouble previously existing, suspicion should at once be aroused. An early exploratory incision is attended with a minimum of risk, and if malignant disease is discovered, it can be treated while the affected area is still very limited and glandular involvement has not as yet occurred. Only thus can we get at the disease at a time when it may be thoroughly eradicated, and by the adoption of this plan we are now beginning to show excellent results.

Dr. Sinclair Tousey read a paper on

THE RELATION OF THE X-RAY AND RADIO-ACTIVE SOLUTIONS TO EXAMINATION OF THE STOMACH.

He said he had repeatedly determined the presence of cancer of the stomach by the use of the x-ray alone. At present he is inclined to rely, in stomach work, more upon the fluoroscopic than upon the skiagraphic examination. Sometimes a tumefied anterior wall or pyloric extremity can be quite positively made out with the fluoroscope, and be merely indicated with a reasonable degree of probability by a skiagraph. In other words, a tumor of the stomach is almost transparent to the x-ray, and, being in constant motion during respiration, is better studied directly. Simple dilatation of the stomach and gastroptosis, without the presence of a tumor, would scarcely be capable of demonstration by the x-ray under ordinary circumstances; and it was with a view to the diagnosis of these conditions that his experiments were undertaken. All his work with radium and radio-active solutions, both in the laboratory and in the treatment of patients, has been with radium of 20,000 radio-activity, and the amount used in each instance was 1 dgm. The radio-active solution was prepared by immersing such a quantity of radium enclosed in a hermetically sealed glass tube for four weeks in 16 oz. of normal saline solution contained in a stoppered glass jar. The fluorescent solutions employed are made in accordance with suggestions from Dr. Kemp.

Dr. Tousey then proceeded to enumerate his observations up to the present time. Among them are the following: (17) In human subjects to whom radio-active solution was given subcutaneously or by the mouth no disturbance of any kind was produced. (18 and 19) Radio-active solutions were injected into a cat and a rabbit, in the lumbar region, every day or two for a week, without producing any symptoms. In the case of the cat there was at first a slight looseness of the bowels, which was thought to indicate that the injection was too large and which disappeared after the amount had been produced. (20) A dog weighing about 12 pounds was etherized and radio-active solution injected through the left femoral vein. The right common carotid artery had been opened and connected with a mercurial manometer registering the blood-pressure upon a kymograph. At first 30 cc. was given very rapidly, and the same quantity was added after an interval of five minutes. The only effect noted was a slight rise in blood-pressure when the infusion was begun. (21) A rabbit was killed and the abdomen opened. The contents of the stomach were partially removed and the organ was then filled up with a mixture of radio-active and fluorescent mixtures. The pylorus and cardia were ligated and the abdomen sewed up. When the animal was examined by the x-ray in the dark, with all visible light from the x-ray tube excluded, no fluorescence was visible to the naked eye; but with the fluoroscope the stomachic region seemed very transparent and could be mapped out exactly. An x-ray picture was then taken with the animal prone upon the table, and, as may be seen, it shows the outline of the stomach in a brilliant manner. The stomach was then emptied of all contents, and another picture taken under precisely the same conditions.

The conclusions reached were as follows: (1) Radio-active and fluorescent solutions are innocuous when given by the mouth or subcutaneously.

(2) They do not produce, either singly or in combination, sufficient fluorescence to be of value in the examination of the stomach without the use of some additional light to excite their fluorescence.

(3) They will in some cases be of the very greatest assistance in the x-ray diagnosis of stomach lesions.

(4) They will in some cases be of value in the x-ray treatment of stomach lesions.

Recent Literature.

Anatomy Applied to Medicine and Surgery. By D. E. Mundell, B.A., M.D., Professor of Applied Anatomy, Faculty of Medicine, Queen's University, Surgeon to Kingston General Hospital. Kingston: The British Whig. 1903.

This small volume of 492 pages is designed to place before the student in a practical way knowledge of human anatomy. In addition to descriptions of anatomical relations, there is added where called for certain practical surgical and medical matters pertaining to the various regions of the body. The volume is almost devoid of illustrations, which is always regrettable in the consideration of a science of this character. It shows also signs of hasty preparation and somewhat careless proofreading; a long list of errata is printed, which does not add to one's confidence in the thoroughness of revision of the text. The binding and type are adequate, but not up to the standard of modern book-making.

A Dictionary of Medical Science. Containing a full explanation of the various subjects and terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Bacteriology, Pathology, Surgery, Ophthalmology, Otology, Laryngology, Dermatology, Gynecology, Obstetrics, Pediatrics, Medical Jurisprudence, Dentistry, Veterinary Science, etc. By ROBLEY DUNGLISON, M.D., LL.D., late Professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia. New (twenty-third) edition, thoroughly revised, with the pronunciation, accentuation and derivation of the terms, by THOMAS L. STEDMAN, A.M., M.D., member of the New York Academy of Medicine. Imperial octavo volume of 1224 pages, with about 600 illustrations, including 85 full-page plates. Philadelphia and New York: Lea Brothers & Co. 1903.

When a book has reached its twenty-third edition, it seems hardly necessary to speak in its commendation. Of the various medical dictionaries published within the period of the active development of medical science, none has been more progressive than this. When one considers that at the present time about two new terms daily are added to medical terminology, it is apparent that the work of the lexicographer is peculiarly exacting, and that a new edition means not merely a repetition of the preceding one with certain alterations, but a very extensive addition to the subject matter, with the coincident exclusion of words and terms which have become obsolete.

The revision has been undertaken by Dr. Thomas L. Stedman, and certainly shows evidence of most assiduous care. The illustrations are numerous and excellently reproduced. The definitions are full and often explanatory. In general we commend this book, as we have its predecessors, as a complete and satisfactory epitome of medical progress. The volume before us is provided with a thumb-letter index, which, although not essential, facilitates ease of reference. The printing of such a book is peculiarly difficult, but it has been most satisfactorily done by the publishers.

Quiz-Compends. No. 1. A Compend of Human Anatomy. By SAMUEL O. POTTER, M.A., M. D., M. R. C. P. (Lond.), formerly Professor of the Principles and Practice of Medicine in the Cooper Medical College of San Francisco. Seventh Edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1903.

This is one of the best known of the Quiz-Compends, a type of book which apparently is giving place to others of somewhat more inclusive character. As a collection of facts briefly stated, the book is of value. As a means of studying human anatomy it clearly has its shortcomings. This, its seventh edition, requires no special comment on our part.

A Manual of Operative Surgery. By SIR FREDERICK TREVES, Bart., K.C.V.A., C.B., LL.D., F.R.C.S. New edition, revised by the author and JONATHAN HUTCHINSON, Jun., F.R.C.S., Surgeon to the London Hospital, etc. In two volumes. Vol. II. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Only a few months have elapsed since the appearance of the first volume of this new edition, a review of which was recently published (BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. cxlix, 740, 1903). The volume now under consideration (Vol. II) completes the work. Like its companion volume it is an ornamentally made book. It is an octavo of 824 pages with upwards of 470 illustrations. An index of names and subjects for both volumes is appended. It is classified by "Sections," which describe the surgery of special regions and organs, and are designated as Plastic Surgery (which includes cicatricial contractions, hare-lip, cleft palate, webbed fingers, congenital defects of the bladder and urethra and ruptured perineum); Operations on the Neck; Abdomen (including the female pelvic organs and kidney); Hernia; Bladder; Scrotum and Penis; Rectum; Head and Spine; Thorax; Breast.

The same general characteristics noted in Vol. I are also present in this volume. Anatomical points are given and instruments required enumerated, the steps of the special operation stated and the after-treatment described. The illustrations are numerous and as a rule well chosen. English, American, French and German methods are freely quoted. The advance in special surgery since the publication of the former edition is strikingly evident as one studies this new edition.

Generally speaking the character of the work is excellent, the subject fully treated. The section on the Abdomen is one of the features of the book which attracts attention. That dealing with Genito-Urinary Plastics is interesting and instructive. In Hernia the author's description of the characteristics enabling one to identify the "sac" in a strangulated hernia is an excellent statement of the actual conditions presented to the operating surgeon. It gives practical, accurate facts which will be of some practical assistance in these difficult emergencies, and not time-worn, oft-quoted, glittering generalities.

The book will well repay a careful study.

In regard to the "making" of the book, the type and paper of this volume, as in Vol. I, attract attention and cause favorable criticism. The gilded edge and uncut leaves, however, although they may be considered artistic and a refinement in book making, are by the busy operating surgeon liable to be regarded as inappropriate elaborations of a professional tool. The latter surely is a time-killing feature, and an extra burden to an anxious brain seeking information by the most direct route.

Progressive Medicine. Vol. I. March, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. 337 pp. Illustrated. Philadelphia and New York: Lea Brothers & Co.

The first number of the sixth volume of this periodical publication appears in somewhat altered form from its predecessors. Hitherto the volumes have been bound in stiff cloth covers. This volume has paper covers, which permits of rebinding to suit the subscriber's particular taste and also reduces the price. This series is one of the best epitomes of medical progress published in the English language. Its frequent publication permits of a somewhat more complete review of medicine and surgery than is possible in those volumes which appear at wider intervals. Surgery of the head, neck and thorax, infectious diseases, diseases of children, laryngology and rhinology and otology are discussed in this volume. These subjects are reviewed in the usual thorough-going fashion which we have come to expect in this periodical.

Clinical Pathology of the Blood. A treatise on the General Principles and Special Applications of Hematology. By JAMES EWING, A.M., M.D. Second Edition. Revised and Enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1903.

We have already commented favorably upon the first edition of this book (JOURNAL, July 4, 1901, p. 23). The second edition which has recently appeared does not in general differ in appearance from its predecessor. The intervening years have been, however, prolific in work on the general subject of the blood. This work the author has incorporated into the new edition, a task requiring the study of about four hundred new articles or monographs. The plan adopted in the first edition of appending bibliographical lists to the various chapters is followed in this, with the addition of these new articles. We are glad to see a reversion to the scientific method of bibliographical references, which have been so largely omitted from recent textbooks. It is certainly true, as Dr. Ewing implies, that works without bibliography are of relatively little value in the task of discriminating between authorities requiring consultation of original sources, and he has, therefore, adhered to his plan of appending very complete bibliographical lists.

Certain changes have been made in the chapters on technique, the serum test for blood and the subject of crioscopy. The morphology of blood cells, leukemia and the essential features of Ehrlich's immunity theories have been incorporated. Four new plates and other figures have also been added. The book is an excellent one, clearly the work of a scholar, and this being said, it requires no further criticism than we have already given it.

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SPECIALIZED SURGERY.

PROGRESS in surgery, as in other branches of scientific work, apparently depends in great measure upon wide experience along certain definite lines. The field of operative surgery has expanded to such a degree during the last decade that it is no longer possible for any single individual to gain the knowledge which is essential to progress in all branches. In surgery, therefore, as in the whole domain of medicine, we find a greater and greater tendency toward specialism, which unquestionably has its distinct advantages as well as its individual drawbacks. It is of the advantages, however, that we wish to speak.

It is clear to the most casual observer that if any one man is to attain wide surgical experience in the treatment of the diseases of certain organs or structures, he must be given the opportunity to study and operate upon more cases than would in the natural course of events come under his jurisdiction. This is, perhaps, particularly true of two great fields in surgery which are apparently at the present time exciting wide interest among surgeons; namely, surgery of the stomach and surgery of the central nervous system. These at least will serve as examples of the matter to which we wish to call attention.

In the ordinary hospital service, even of our largest institutions, it is not possible that sufficient patients with diseases of the stomach, upon whom operation is desirable, can be collected to demand the careful study of a large number of surgeons. The result is that energy is wasted, that if operations are attempted they are done

rather as a part of a general surgical service than as a special investigation, with the very natural result that less enthusiasm and interest are developed than would be the case were a larger number of patients available. It is, therefore, unfortunate that some arrangement may not be made by which those men who are particularly interested in this or other lines of surgical work may not have a somewhat exclusive privilege as regards certain types of cases. If we are as a community to produce work of originality, it is clearly essential that one man or a group of men particularly interested should devote themselves for a longer or shorter period of time to distinct lines of work, and should be encouraged in every possible way to accomplish results of importance. This can only be done by liberal co-operation, and it may be self-sacrifice.

The other subject which we have used as an example is that of the surgery of the central nervous system. Here again it is manifestly impossible, even in a very large community, that cases sufficient in number should appear at our various hospitals to permit of division of labor consistent with wide personal experience. Unquestionably there are certain men in every community deeply interested in the surgical bearings of the serious and discouraging disorders of the central nervous system capable of palliation or relief by surgical means. It is no less true that at our large hospitals the interest which any one man may have is checked by the fact that he has small opportunity to apply what knowledge he has, or to extend his knowledge of the operative treatment of these conditions. This again is naturally due to the fact that the cases are not concentrated in the hands of one or several deeply interested men, but are scattered throughout the service of many surgeons whose interest is lessened because of the rarity of the disease as it comes into their individual experiences. On the other hand, if it were possible that all cases of cranial or spinal surgery, coming to one of our large hospitals for operation, could be concentrated into the service of a few men, it is clear that an experience would be gained which is now absolutely impossible, and also that the hospital in question might well look for results of significance from the work of the surgeons so placed. That such a plan is possible, and that it may be fraught with advantage, not only to the particular surgeon who undertakes the work, but also to the institution which he represents, is sufficiently evident from recent happenings in other cities. If cerebral surgery is to be done at all, it should be undertaken with the enthusiastic belief that results of positive importance may be attained through devotion to the various technical details involved, and not approached from the pessimistic point of view which is far too current among medical men.

The foregoing remarks naturally apply to all those branches of surgical work in which the number of patients is insufficient to give requisite experience, and particularly that sort of experience which may give origin to new ideas, new methods and a well elaborated technique. Our contention merely is that in all such branches of surgical work opportunity should be given for the greatest possible attainment of useful knowledge, and this we believe may be accomplished only by dividing the cases as they enter our hospitals. We are quite aware of the difficulties involved in any such plan, nor is it in the least our purpose to discuss ways and means. The fact, however, remains that progress lies along some such line as that suggested, and the principle of specialization as applied to certain groups of cases is certainly a prerequisite to original surgical work. It need hardly be said that many of the surgical lesions requiring operation are so frequent that no such division of cases is called for. Of this we are not speaking. Our contention merely is for the profit to be had from grouping unusual cases in the hands of a few men rather than dissipating them in the hands of many.

REPORT OF THE MASSACHUSETTS GENERAL HOSPITAL.

THE ninetieth annual report of the trustees of the Massachusetts General Hospital, a pamphlet containing 256 pages, similar to the many which have preceded it, is before us. The trustees report that no new buildings have been erected either at the McLean Hospital or at the Convalescent Home in Waverley. At the General Hospital in Boston, on the contrary, there has been an unusual activity in construction and in improvements. Among these are a new ward for children, improvements in various of the old wards, a new relief ward, and the fitting out of a room for the installation of a Zander apparatus.

Naturally the most notable addition to the new buildings was that for out-patients which covers 69,600 square feet. In connection with this out-patient department, which so far as our knowledge goes stands unique in hospital construction, there has been opened the Weld ward, given up largely to treatment of diseases of the

skin, but also providing two beds each for the department of neurology and the department of laryngology. Each year in the history of this hospital has been marked by some definite improvement or further facility for the treatment of the sick, but we are inclined to think that the wide-reaching significance of a really worthy building for the treatment of out-patients will be among the most influential factors in the development of the hospital of the many improvements which have preceded it. Prophecies in such matters are possibly fallacious, but it is quite impossible to conceive that this new building can ever fail to be sufficiently commodious for the purposes for which it was designed.

During the year 1903, 5341 patients were treated at the hospital as against 5199 for the previous year, with an average weekly cost per patient of $16.45 as compared with $17.16 for 1902. About 200 more patients were received in the out-patient department than in the preceding year. The average stay of patients in the hospital during the year was nineteen days as against seventeen days in the preceding year. At the McLean Hospital slightly fewer cases were treated in the year under consideration than in the preceding one. The weekly cost of maintenance of patients in this department of the hospital was about $2.00 more than in the preceding year.

During the year 1903 there was a somewhat unusual number of changes in the visiting staff, among the more important of which were the retirement of Dr. Charles B. Porter and the resignation of Drs. James C. White and William L. Richardson. Dr. John T. Bowen was appointed senior physician to out-patients with diseases of the skin in place of Dr. James C. White. Drs. C. L. Scudder and James J. Minot were respectively made visiting surgeon and visiting physician to the hospital. The retirement of Dr. Edward Cowles from the superintendency of the McLean Hospital led to the appointment of Dr. George T. Tuttle as superintendent to fill the vacancy.

The report of the visiting staff is largely given over to a consideration of the advantages to be derived from the new out-patient department. The plan recently inaugurated of employing as paid lecturers for the Training School for Nurses two graduates in medicine has entailed naturally an increased expense to the school, which has been more than justified by the results obtained. Reference is also made to the significant discovery of Dr. J. H. Wright that the disease known as "Aleppo Boil" is due to a protozoön. In the report of the McLean Hospital Training School for Nurses Dr. Edward Cowles' well known pioneer work in instituting adequate nursing for the insane is well commemorated in his own words which we append:

My retirement from the hospital at the end of this year closes my immediate relations with the school, but cannot change my interest in it, nor in those whose names are borne in the long list of its pupils; my memories of their faithfulness and loyalty and the never-failing sense of mutual personal respect and friendly esteem are treasures that cannot be lost. These have another value in the assurances they give of interest, sympathy and good wishes, professionally and personally, among all who have been members of this company of workers and helpers in this great service for the relief of mental illness. It was the support given by the nurses that made possible, in large measure, my own share in this work, and no words of acknowledgment of it can adequately express my grateful appreciation.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, April 20, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 21, typhoid fever 9, measles 189, smallpox 0.

A Bequest to the Yale Medical School. — By the will of the late Mrs. Henry Farnam of New Haven, Conn., the Yale Medical School receives a legacy of $54,500, as an addition to its general endowment fund.

Dinner for Professor Ehrlich. — Drs. W. T. Councilman, H. C. Ernst and Theobald Smith gave Professor Paul Ehrlich a dinner on the evening of April 19, among other guests being President Eliot and Professor Richards of Harvard College and Drs. Meltzer and Dunham of New York.

Anthrax in Lynn, Mass. — The recent death of a workman in Lynn from anthrax calls attention to the fact that during the past three or four years there have been in the neighborhood of fifteen cases of the disease in that city, of whom it is said that the great majority died. The matter is certainly deserving of careful investigation and study.

LECTURES ON INTEGRATIVE ACTION OF THE NERVOUS SYSTEM.— Prof. Charles S. Sherrington, M.D., of the University of Liverpool, is to give the Silliman lectures for 1904 at Yale University on the above subject. There will be ten lectures.

LECTURE ON EXPERIMENTAL THERAPEUTICS. — Professor Paul Ehrlich, director of the Institute for Experimental Therapeutics at Frankfort, gave an informal address in German at the Harvard Medical School Wednesday evening, April 20, on "Pharmacology and Experimental Therapeutics."

THE STILLMAN INFIRMARY. — The corporation of Harvard University announces an additional gift of $25,000 from Mr. James Stillman. Mr. Stillman had previously contributed $50,000, and that, with the very recent gift, will make possible the construction of a ward for contagious disease. The new buildings will be erected adjoining the present one on land which was secured sometime ago.

PREVENTION OF BLINDNESS AT BIRTH. — The Massachusetts Association for Promoting the Interests of the Adult Blind has published a leaflet on the prevention of blindness at birth, giving directions for treatment which may be carried out by the laity. The leaflet calls attention to the fact that inflammation of the eyes in new born infants is a contagious disease which must be treated early and vigorously under a doctor's direction, and the statement is made that in England about thirty per cent of pupils in the schools for the blind lost their sight through neglect or wrong treatment of the disease.

NEW YORK.

RESIGNATION OF PROF. W. T. BULL, M.D. — At a meeting of the Board of Trustees of Columbia University held April 11 it was announced that Dr. William T. Bull had tendered his resignation as Professor of Surgery, to take effect June 30, 1904. The resignation was accepted and a resolution was adopted expressing regret at Dr. Bull's retirement. The students, it was stated, would still have the opportunity of attending his clinics at Roosevelt Hospital. Upon the recommendation of the Medical Faculty, Dr. George E. Brewer, Professor of Clinical Surgery, was given a seat in the Faculty of Medicine. Dr. Edward L. Trudeau, of Saranac Lake, N. Y., having resigned as a member of the board of trustees of the university, Dr. T. Matlack Cheesman was elected as his successor.

A TUBERCULOSIS COTTAGE HOSPITAL. — By a gift from Mrs. Andrew Carnegie a tuberculosis cottage hospital is to be established under the auspices of the Speedwell Society for Sick and Convalescent Children. Many of the children cared for by this society, which was organized two years ago, are taken from the New York Post-Graduate Hospital, and it has been the practice to send the patients to Morristown, N. Y., where they are boarded in private families under the supervision of a competent physician and a matron who visits them each day. The reason for establishing the special hospital is that most of the families object to taking children suffering from tuberculosis. The site for the institution has not as yet been determined upon, but it will probably be at no great distance from New York.

PRACTICING WITHOUT LICENSE. — Acting upon information furnished by Dr. J. McP. Scott, Secretary of the Board of Medical Examiners of Maryland, the New York County Medical Society has caused the arrest, on the charge of practicing medicine without due qualification or license, of "Drs." Charles Conrad and J. White Bushnell, who have been advertising extensively and doing a quack business under the style of The Platen Institute, Incorporated. It appears that Conrad wrote to Dr. Scott seeking a license to practice in Maryland, and in the course of his letter he stated that he held a diploma from the "Vetus Academia Physio-Medica," an institution, the founder and president of which he announces himself to be in his advertisements and circulars. He also acknowledged that he was not licensed in any state.

INTERFERENCE WITH HEALTH DEPARTMENT NURSES. — Some of the trained nurses employed by the health department to look after the children of the public schools having reported to President Darlington that they had been interfered with in the performance of their duties by the school principals, Dr. Darlington requested Superintendent Maxwell of the department of education to take some action in the matter. As a result, the superintendent has addressed a communication to all the principals, in which he calls attention to the fact that friction has developed and points out that the nurses were assigned to look after the children sent home by the medical inspectors, in order that the children might get back to school as soon as possible. The letter goes on to say: "In many cases, were it not for such attention the children would not

be given proper medical care, and prolonged absence, necessitating the intervention of the truancy department, would result. It will be seen, therefore, that the nurses, if given proper opportunity, will aid the principals in maintaining a high percentage of attendance. You are requested therefore to co-operate with these nurses in the proper discharge of their duties. If questions of authority arise, please communicate with me, and I will endeavor to adjust matters satisfactorily with the department of health."

Annual Report Department of Health. — In his annual report, just submitted to the Governor, Dr. Daniel Lewis, Commissioner of the State Department of Health, says that the most conspicuous feature of the sanitary condition of the state during 1903 was the epidemics of typhoid fever at Ithaca and West Seneca, near Buffalo, and he points out that similar conditions to those which prevailed at these places menace the health of many municipalities, as well as of various summer resorts which are patronized by citizens of other states beside New York. Many millions of dollars, the Commissioner asserts, are annually lost to the people of the state through preventable diseases. "If the monetary value of a human life is assumed to be $5,000," he says, "the deaths from but five of the preventable diseases during 1903 represent a loss of $94,000,000. These figures seem appalling, and yet millions upon millions can properly be added to this sum, in loss of wages, expense of the care of the sick, and many other expenses incidental to the management of these epidemic and infectious diseases." The deaths from the five diseases referred to were as follows: Pulmonary tuberculosis, 13,194; diphtheria, 3,056; typhoid fever, 1,665; scarlet fever, 1,057; smallpox, 41; total, 18,992. Dr. Lewis says that the paltry $20,000 a year which is available for the purpose of a systematic supervision of the water supplies, sewer systems and drainage is quite inadequate to meet the required conditions and enforce the law. A new bureau of water supply and drainage in the Health Department is recommended, and immediate action is urged, since a serious epidemic now in progress (at Watertown) has exhausted the available funds. In the report of the cancer research laboratory which accompanies the Commissioner's report it is stated that the past year has not been characterized by any marked discoveries which can be safely announced to the world, but has been marked by a steady, earnest and laborious study along the lines of investigation. The vital statistics of 1903 show a state death-rate of 17.6 and a birth-rate of 21.8.

Miscellany.

THE INOCULATION OF APES WITH SYPHILIS.

Reference has already been made in the *British Medical Journal*[1] to the successful inoculation of a female anthropoid ape with syphilis by Metchnikoff and Roux. Lassar of Berlin has also apparently succeeded in producing the disease in another anthropoid ape.[2] The animal in this case was a male between four and five years old. The inoculation was carried out somewhat in the same manner as in Metchnikoff's experiment. Scarifications were made in the skin of the forehead in several places, and the secretion taken from a primary sore rubbed in. This was also done upon the lips. In addition, in this case small pockets were made in the skin of the forehead and ears, and minute portions of the chancre inserted into them. All the inoculations were made on the same day. No inoculation was made upon the genitals. The primary sore referred to above was an untreated extragenital chancre of several weeks' duration, situated on the arm of a man who had become infected in the operation of tattooing. This patient also undertook the care of the ape, since, in the event of the experiment proving successful, scratches or bites inflicted by the animal would naturally be fraught with danger to any person not himself suffering from the disease. In order to ensure that the material did not get rubbed off, the ape was kept rolled up in a sheet for an hour or two after the operation. The various sites of inoculation healed in forty-eight hours without disturbance, and in fourteen days two apparently characteristic lesions appeared on the forehead. These were still quite evident when the animal was exhibited at a meeting of the Berlin Medical Society held six weeks later. In this case, as in Metchnikoff's, definite secondaries followed — namely, papular rashes on the soles of the feet, the palms, the brow, and round the anus. Cervical adenitis was also present, and the front of the scalp became bald. In the Paris experiments, it will be remembered, the virus of more than one patient was used, and secondary as well as primary material was employed, the primary material being applied to the genitals, and the secondary to the forehead. Further, the inoculations on the genitals were performed on two separate occasions, five days intervening between them. The resulting chancre appeared on the genitals (clitoris). Thus in both experiments it is extremely interesting to note that the inoculation was effected by means of primary virus. — *British Medical Journal.*

[1] *British Medical Journal*, October 3, 1903, and February 27, 1904.
[2] *Berl. klin. Woch.*, December 28, 1903.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 9, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Typhoid fever.
New York	3,908,644	1,895	611	24.75	25.12	3.69	.53	.42
Chicago	2,021,086	562	128	20.45	22.59	.71	.36	.89
Philadelphia	1,407,968	597	132	29.81	19.43	2.17	.50	5.02
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	229	66	23.57	13.53	.44	.44	.87
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,545	—	—	—	—	—	—	—
Pittsburg	362,403	149	—	32.98	17.45	3.35	1.34	7.38
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	64	15	18.74	25.00	—	1.56	1.56
Boston	617,950	223	52	17.73	17.48	1.77	1.34	.45
Worcester	136,925	45	14	4.44	20.00	2.22	—	—
Fall River	119,349	36	14	27.77	13.88	2.78	—	—
Lowell	104,402	33	14	12.12	18.18	—	—	—
Cambridge	100,998	28	4	17.85	21.42	—	—	—
Lynn	73,875	22	5	4.54	4.54	—	—	—
Lawrence	72,348	16	5	25.00	12.50	—	—	—
Springfield	72,020	19	2	26.31	21.05	—	5.26	—
Somerville	70,413	27	5	22.22	25.92	3.70	3.70	—
New Bedford	68,863	32	12	18.75	21.87	—	3.12	—
Holyoke	50,538	16	8	—	6.25	—	—	—
Brockton	46,601	20	7	30.00	—	5.00	—	—
Newton	39,310	6	—	16.67	16.67	—	—	—
Haverhill	39,061	23	2	8.70	8.70	—	—	—
Malden	37,205	7	1	—	42.90	—	—	—
Salem	37,188	20	6	15.00	30.00	5.00	—	5.00
Chelsea	36,499	16	2	—	12.50	—	—	—
Fitchburg	36,335	14	1	14.28	21.42	—	—	—
Taunton	34,577	16	2	18.75	43.75	—	—	6.25
Everett	30,209	7	4	14.30	—	—	—	—
North Adams	29,201	6	0	33.33	16.67	—	—	16.67
Quincy	26,798	10	3	10.00	20.00	—	—	—
Gloucester	26,131	—	—	—	—	—	—	—
Waltham	25,797	5	3	20.00	20.00	—	—	—
Brookline	23,576	5	—	—	20.00	—	—	—
Pittsfield	22,870	12	2	16.67	16.67	8.33	8.33	—
Medford	21,956	12	1	—	33.33	—	—	—
Chicopee	21,692	12	6	33.33	—	8.33	—	—
Northampton	20,314	9	1	11.11	11.11	—	—	—
Beverly	15,807	4	1	—	50.00	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	5	—	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	4	1	—	—	—	—	—
Hyde Park	14,500	5	2	40.00	20.00	—	—	—
Newburyport	14,478	4	1	—	—	—	—	—
Woburn	14,315	2	—	—	—	—	—	—
Melrose	13,819	9	1	—	33.33	—	—	—
Westfield	13,809	3	1	33.33	33.33	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	4	3	25.00	25.00	—	—	—
Revere	13,609	2	—	—	—	—	—	—
Framingham	13,974	0	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	12,324	4	2	—	25.00	—	—	—
Southbridge	11,716	3	2	66.67	—	—	—	—
Watertown	11,575	0	—	—	—	—	—	—
Weymouth	11,350	5	1	—	20.00	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 4,247; under five years of age, 1,143; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 995; acute lung diseases 925, consumption 467, scarlet fever 45, whooping cough 9, cerebrospinal meningitis 35, smallpox 7, erysipelas 26, puerperal fever 17, measles 66, typhoid fever 61, diarrheal diseases 144, diphtheria and croup 104.

From whooping-cough, New York 5, Chicago 1, Philadelphia 1, Pittsburg 2. From smallpox, Chicago 1, Philadelphia 5, Pittsburg 1. From cerebrospinal meningitis, New York 29, Somerville 2, and Boston, Worcester, Brockton and Southbridge 1 each. From erysipelas, New York 10, Chicago 2, Philadelphia 3, Baltimore 1, Pittsburg 2, Providence 1, Boston 3, New Bedford 1, Springfield 1, Somerville 1, Pittsfield 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending March 26, the death-rate was 18.7. Deaths reported 5,469; acute diseases of the respiratory organs (London) 195, whooping cough 200, diphtheria 46, measles 176, smallpox 6, scarlet fever 32.

The death-rate ranged from 8.7 in Wildensen to 30.0 in Stockton-on-Tees: London 18.4, West Ham 15.2, Brighton 20.6, Southampton 19.5, Plymouth 24.2, Bristol 15.0, Birmingham 23.3, Leicester 14.7, Nottingham 19.3, Liverpool 19.8, Bolton 20.5, Manchester 24.3, Bradford 19.8, Leeds 19.9, Hull 16.8, Cardiff 16.9, Rhondda 21.3, Merthyr Tydfil 12.2, Hornsey 9.6, Warrington 24.8.

METEOROLOGICAL RECORD.

For the week ending April 9, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 3	29.94	36	43	29	49	46	48	N W	N W	18	13	C.	F.	0
M.. 4	30.24	39	52	26	36	38	37	N W	W	9	12	C.	C.	0
T.. 5	30.15	50	64	37	38	32	35	N W	N W	12	6	C.	C.	0
W.. 6	30.16	46	50	42	42	78	60	N E	E	7	4	C.	O.	0
T.. 7	30.04	48	55	40	81	88	84	E	S E	4	2	R.	F.	.13
F.. 8	30.20	47	54	40	67	89	78	N W	E	3	11	C.	O.	0
S.. 9	29.86	42	44	39	92	98	95	N	N E	14	8	O.	R.	.59
☞	30.08		52	36			62							.72

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

DR. PHILIP BISSELL, of the resident staff of the New York Hospital, died at the hospital from pneumonia, on April 13. He was twenty-seven years of age, and a graduate of the medical department of Columbia University in the year 1902.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— The Society will meet in Sprague Hall, Medical Library Building, on Monday, April 25, 1904, at 8.15 P. M. Subject, Aciduria (Acetonuria) Associated with Death after Anesthesia. Papers and reports of cases on this subject will be presented for the Staff of the Children's Hospital by Drs. Brackett, J. S. Stone and Low.

ARTHUR K. STONE, M.D., Secretary.
543 Boylston St.

SUFFOLK DISTRICT MEDICAL SOCIETY.— There will be a meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8, The Fenway, Wednesday, April 27, 1904, at 8 P. M. Papers, Dr. E. L. Twombly, "Conservative Surgery of the Uterine Appendages with Especial Reference to the Ovaries." Dr. Henry O. Marcy, "The Technic of Wounds Incident to Laparotomy."

W. H. GRANT, M.D., Secretary.
DANIEL H. CRAIG, M.D., Chairman.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 14, 1904.

GREENE, J. B., passed assistant surgeon. Granted extension of leave of absence, on account of sickness, for sixty days from February 25, 1904. April 2, 1904.

WARREN, B. S., assistant surgeon. Granted extension of leave of absence for one day. April, 11, 1904.

WARD, W. K., assistant surgeon. Granted extension of leave of absence for four days from April 7. April 8, 1904.

STILES, C. W., chief of Division of Zoology. Detailed to attend meeting of Medical Association of Mississippi at Jackson, Miss., April 20–22. April 12, 1904.

GREGORY, G. A., acting assistant surgeon. Granted leave of absence for three days from April 12. April 12, 1904.

JACKSON, J. M., acting assistant surgeon. Granted leave of absence for five days from April 20. April 12, 1904.

RODMAN, J. C., acting assistant surgeon. Granted six days' leave of absence from April 12. April 9, 1904.

BOARD CONVENED.

Board convened to meet at Stapleton, N.Y., April 18, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon Preston H. Bailhache, Chairman. Passed Assistant Surgeon A. C. Smith, Recorder.

BOOKS AND PAMPHLETS RECEIVED.

Aseptic Duties of a Surgical Nurse or Dresser. By John O'Conor, M.A., M.D. Buenos Aires.

Herter Lectures.[1]

BY PROFESSOR PAUL EHRLICH, M.D., LL.D., FRANKFURT, GERMANY.

LECTURE I.

THE MUTUAL RELATIONS BETWEEN TOXIN AND ANTITOXIN.

Abstract.

INTRODUCTION.

THE importance of practical and theoretical study of immunity. Influence of the side-chain theory. Cellular origin of antibodies. Relations between the constitution and distribution of chemical substances and their pharmacological action. Complexity of apparently simple functions.

Opposing views. Criticism of their experimental basis eliminates errors and reverses their significance. Importance of hypothesis to scientific advancement. Heuristic value of theory of immunity. Utility of succinct nomenclature and symbolic representation (algebra, chemistry).

HISTORY OF SIDE-CHAIN THEORY.

Studies upon the localization of various dyes and their relations to cellular chemistry (methylene-blue, neutral-red). Production of immunity with poisonous proteids; independently of Behring (ricin, abrin, robin). Immunity not only bacterial, but a general principle. Quantitative studies on augmenting immunity and determining its degree. Older obscure conceptions of the relations between antitoxin and toxin (union, destruction, cell-protection). Experiments in vitro eliminate obscurities of those on animals. Chemical nature of union demonstrated. Warmth and concentration hasten union.

TOXOIDS.

Difficulty in applying purely chemical conceptions in the case of diphtheria toxin. Law of equivalence apparently violated. Definitions of immune unit; technical toxin-values, lethal dose ("Dosis lethalis"), limit zero ("Limes null" = Lo), limit death ("Limes Tod" = L †). Different lots of diphtheria toxin though neutralized by a single immune unit contain different numbers of lethal doses. Investigation shows that upon standing the diphtheria toxin loses toxicity, but retains undiminished its affinity for antitoxin. The toxin molecule is quantitatively transformed into non-poisonous toxoid. Chemical illustration (anilin and sulphanilic acid). The simplest explanation of toxoid formation rests upon the assumption that the toxin-complex contains two groups of different functions: *a*. Haptophores, by which the complex enters into chemical unions; *b*. Toxophores, which occasion toxic action. Behring's objection, exemplified in hydrocyanic acid, not justified, because of the simple constitution of that poison. Complex organic compounds have repeatedly been shown to contain groups which confer definite properties upon the whole molecule. Anesthesiophore function of the benzoyl group in cocain; functions of the chromophore and auxochrome groups in dyes; color reactions of proteids due to definite groups (tyrosin, tryptophan, etc.). Evidence of this complex character of toxins also furnished by studies of hemolysins and bacteriolysins, which have their origin in the union of an amboceptor and complement and are analogous to toxins, the amboceptor representing the haptophore and the complement the toxophore group. Kyes' studies on cobralecithid.

SIDE-CHAIN THEORY.

Haptophore Group. — The conception of the duplex nature of toxins, etc., forms the basis of the side-chain theory. Views regarding protoplasm. Fundamental nucleus and side-chains (receptors). These receptors subserve normal assimilative processes which are of synthetic character. Only those substances can be chemically incorporated with the protoplasm (assimilated), which possess a grouping most closely related to some constituent of the cell, fitting into its constitution as a key into a lock. The toxins represent, to a certain extent, toxic foodstuffs. It is mere chance whether they encounter suitable receptors in the cells of a particular animal species or not, as is shown by the irregularity in the action of given toxins in the animal kingdom (botulism). Elaboration of the side-chain theory. The antitoxins are receptors, produced in excess, and liberated from the cells. Appearing in the fluids they unite with the toxins for which they have specific affinity and thus protect the cells which have receptors of similar affinity from damage (analogy to lightning-rods). Not only toxins, but also toxoids, call forth antibodies. It is therefore chiefly the haptophore group which causes the cell-reaction, yielding antibodies by occupying the specific receptors. It is doubtful whether this cell reaction is purely regenerative. The great disproportion between the amount of toxin introduced and the quantity of antibodies obtained points to a concomitant cell-stimulation (Bindungsreiz of Wassermann). This is supported by the fact that a single immunization with suitable bacteria (*e. g.*, cholera) or toxin (*e. g.*, that of diphtheria) may induce an abundant production of antibodies.

EVIDENCE IN FAVOR OF THESE THEORETICAL CONCEPTIONS.

(1) The demonstration of specific receptors in organs susceptible to a particular poison. Wassermann's experiments: union of tetanotoxin with cerebral tissues. Disproof of opposing views of Behring and Besredka. Locking of native and experimental hemolysins by susceptible erythrocytes.

(2) The demonstration by Pfeiffer that during the latent period, before free antibodies appear in the serum, they may be obtained from the

[1] Delivered before the Medical Department of Johns Hopkins University April 12, 13, 14, 1904.

bone-marrow with salt solution (loosely bound, partially liberated receptors).

(3) Demonstration of the presence of receptors produced and fixed in definitely localized tissues. Increased abrin-locking by the immunized conjunctiva (Römer).

(4) Local production of specific precipitins for maja-albumin after intraocular injection (v. Dungern).

(5) All attempts to produce antibodies with alkaloids, antipyretics and antiseptics have failed. These substances do not enter into the composition of the protoplasm, they encounter no suitable receptors and therefore fail to call forth a specific antigenetic reaction.

TOXOPHORE GROUP.

The toxophore group need not necessarily be simple but may comprise various constituent groups which may be identical or different. Illustrations from alkaloidal chemistry; strychnine contains two oxygenated radicles both of which produce convulsions, and the drug owes its extraordinary toxicity to a combination of the two. Substances of the filicic acid series are active in proportion to the number of filicic butanon groups they contain. Ricin probably contains two toxophore groups, one agglutinating erythrocytes, the other causing its general toxicity. Three varieties of toxoids may be obtained from ricin, one non-toxic but agglutinating, one toxic but not agglutinating; both of these are incomplete toxoids. The third, complete, is neither toxic nor agglutinating (Tarobi). Tetanotoxin and diphtheria toxin also appear to contain various toxophore groups. In the former there may be a lethal toxophore group and a morbific group; and in the case of diphtheria we may have to distinguish between complexes which cause the chronic effects and those occasioning acute manifestations. It is possible that certain partial groups act more powerfully on certain animal species than on others, and this may explain the observations emphasized by Behring that modified toxins meet with a range of susceptibility in the animal kingdom different from that of the original, unmodified toxin. Of practical importance is the question whether for the rapid production of antitoxin it is more advantageous to use only toxoids, or whether the presence of partial components of the toxophore groups exert a more favorable cell-irritation.

The action of the toxophore groups is generally slow. Since the intravenous injection of toxins is rapidly followed by their locking in the tissues and disappearance from the blood, the incubation-period, which in the case of diphtheria *toxones* may last for weeks, can only be explained by the slow action of the toxophore complexes. This is further exemplified in the hemolysins. Other factors may enter into the production of a period of incubation (studies of Hans Meyer and of Roux on tetanus). It is difficult to express definite views regarding the mode of action of the toxophore groups. Hueppe's hypothesis; experimental evidence wanting.

RECEPTORS. SUSCEPTIBILITY TO TOXINS. RELATIONS TO METABOLISM.

The receptors of the cells are constituents of the protoplasm possessing a certain independent individuality, as is shown by the possibility of causing their augmented reproduction. In respect to the toxins they act as localizers or condensers and may from an infinitely dilute solution occasion a concentration of toxins in particular cells similar to the concentration of picric acid which takes place when wool is immersed in a dilute solution. Susceptibility to toxins may be divided into the following varieties:

(1) Great susceptibility. Toxophilic receptors exclusively in vital organs. Antitoxin production very difficult because of damage to cells, only possible through use of toxoids (guinea pig or mouse and tetanus).

(2) Slight susceptibility because of wide distribution of toxophilic receptors in indifferent tissues, *e. g.*, connective tissue, which lock the greater part of the toxins, and thereby protect more important tissues (fowl or rabbit and tetanotoxin).

(3) Insusceptibility, though toxophilic receptors be present, because toxophore groups do not act on protoplasm. Abundant production of antibodies. Rare condition (crocodile and tetanotoxin).

(4) Insusceptibility through lack of toxophilic receptors. Numerous examples clearly established (crotin, arachnin, specific hemolysins).

Definite receptor-complexes are associated with definite forms of metabolism. Uniform metabolic processes imply uniform receptor-complexes and therefore a uniform susceptibility to toxins (diphtheria toxins and guinea pigs; tetanotoxin and mice). Individually varying functions reveal themselves in extraordinarily variable susceptibilty (*e. g.*, crotin and rabbits). The embryonic erythrocytes of chicks possess no receptors for arachnolysin and are therefore not destroyed by this toxin. Immediately after hatching, the development of susceptible erythrocytes begins.

The study of the receptors has been of particular importance in elucidating the processes of assimilation. Former methods applied to damaged cells were not sufficiently refined. Isolated receptors obtained by immunization make an accurate study of assimilation and katabolism more approachable. The reproach brought forward by some controversialists that the theory of receptors should also explain regeneration is extravagant. It is an advance to be able to isolate certain wheels in the complex mechanism of the assimilation-processes and to ascertain their utility. The actual motive power is not revealed and the problem of regeneration of living matter will long remain unsolved.

The demonstration that erythrocytes possess extraordinarily numerous and various receptors

is particularly important. It indicates that these corpuscles, in addition to their function as oxygen-carriers, play an important rôle in metabolism in storing intermediary bodies.

Investigation has been greatly aided by a knowledge of the receptors, since they can be used in the analysis of animal and vegetable poisons to separate them into partial-toxins having different haptophore groups. Thus it is possible by specific locking with specific antibodies to analyze snake poison into neurotoxic, endotheliotoxic and two hemotoxic components. Of the latter, one agglutinates, and the other, through the formation of lecithid, hemolyses the blood (Meyer, Flexner, Kyes). Similar analyses of tetanotoxin and diphtheria toxin are possible. The method is a great advance in a most difficult field of research.

CONCLUSION AND PRACTICAL FORECAST.

The immunization industry which has for its aim the production of sera of highest potency, has made marked progress. Sera of much higher antitoxic value than have hitherto been obtained will be the result. The knowledge that the immunity reaction is reduced by too highly toxic treatment of the animals is spreading. An effort is being made to restrict this immune reaction to tissues of slight vital importance (connective tissue) and to protect vital organs from injury. In this direction are the methods of immunization with toxin and antitoxin injected separately or after admixture. Thus an apparently neutralized toxin may cause antitoxin production (Park). This is due, as will be explained in the next lecture, to the presence of ultra-toxoids.

Progress in the production of curative sera is to be expected only when it becomes possible to obtain antitoxins of greater avidity than those now procured. That this is theoretically possible is shown by the investigations of Kyes who demonstrated that through the immunization of rabbits with cobra-lecithid it is possible to obtain an antibody of considerably higher avidity than that obtained by Calmette with cobra-venom in horses (antivenin). The selection of particularly favorable animal species and the use of toxins of least avidity or ultra-toxones will, most probably, bring this problem much nearer its final solution.

LECTURE II.

PHYSICAL CHEMISTRY *V.* BIOLOGY IN THE DOCTRINES OF IMMUNITY.

Abstract.

INTRODUCTION.

Physico-chemical investigations of Arrhenius and Madsen concerning the application of physical chemistry to the study of toxins and antitoxins. Their belief that tetanolysin is a uniform substance possessing only a weak affinity to its antitoxin and that its neutralization occurs in accordance with the law of Guldberg and Waage. Attack upon my doctrine of plurality of toxic constituents. Favorable reception of these opposing views in certain scientific circles lacking special competence in sero-therapeutical questions. Protest against the attempt of these authors to claim exclusive priority in the development of these questions. The path of biological investigation — the method of partial neutralization of toxins — followed by them was first opened and by long years of work developed by me. The contention that my investigations represent merely an application of Thomsen's principles in his study of affinities between strong acids and bases is incorrect.

Equally unwarranted is the reproach made by these authors that my investigations are inaccurate and have been conducted without sufficient consideration of sources of error. The most important of my results have been confirmed by them, especially as regards the existence of toxoids and their occurrence with varying degrees of avidity, as "prototoxoids," "syntoxoids." On the contrary, the researches of myself and collaborators have been conducted with the utmost precision and care without consideration of cost or time. Nor can I admit that I have violated the principle of choosing the simplest possible explanations. Such explanations received always my first consideration and, as in the case of diphtheria-toxin, gave place to more complex ones only when the experimental results made this necessary.

POINTS OF DEPARTURE. METHODS AND RESULTS OF PARTIAL NEUTRALIZATION.

It was to be determined whether in the production of toxoids a change in avidity for antitoxin occurred. The only available method for this was that of partial saturation or neutralization. A prerequisite of this method is the exact determination of the test-constants, viz., the simple fatal dose, and the Lo and the L† doses, which have reference to the immunity unit (I. E.), and each of which may be the starting point of the investigation. It is then determined by how many fatal doses the toxicity of a given quantity of toxin, as for example the Lo dose, is lessened by its mixture with a fraction, say one tenth, of the immunity unit of antitoxin. Then with another mixture containing a larger amount of antitoxin a second determination is made, and so on. If the toxin were a single substance of uniform composition and the antitoxin possessed for it a strong affinity, like that between hydrochloric acid and potassium, the quantities of toxin which disappear or are neutralized in these mixtures would be in direct ratio to the quantities of added antitoxin. In fact, however, the process of neutralization takes places after a quite different scheme, as is shown by a glance at the exhibited charts.

It is advantageous to present these experimental results in graphic form, and for this different methods are available:

(1) The original, designated by me as the "spectral" mode of representation, which shows step by step the extent of diminution in the number of toxic doses effected by a definite small quantity of antitoxin, to wit, 1-200th of the immunity unit (which quantity I have called the "combining unit"), in the different zones of neutralization.

(2) The "linear" method, employed by Arrhenius, in which the quantities of antitoxin added are represented on the abscissa, and those of the active toxic doses present on the ordinates, is merely another form of graphic representation which has no advantage over the former. On the contrary this method chosen by Arrhenius, which is based upon estimation of the dissociation constants, is objectionable, because the graphic line corresponds only in its middle part with the values actually found, and toward the beginning and the end shows considerable deviations. Moreover its construction rests upon false premises.

INTERPRETATION OF THE PHENOMENA OF NEUTRALIZATION.

From the exhibited charts it is apparent that by employing the Lo mixture three different zones can be distinguished in the spectral mode of representation. In the first zone one combining unit of antitoxin removes on the average either one half or one entire lethal dose. As there is reason to assume that in the case of an ideal, absolutely pure toxin one combining unit removes exactly one lethal dose, the foregoing result indicates that in this zone (1) pure toxoid, or (2) pure toxin, or (3) a mixture of equal parts of toxin and toxoid, designated by me as "hemitoxin," is neutralized. The existence of hemitoxin is possible only in case the toxoid has precisely the same avidity as the toxin; from this it follows, as I have from the beginning assumed, and as Arrhenius has confirmed, that in the transformation of toxin into toxoid no change in avidity occurs.

Pure toxoid occurs often in the form of a prototoxoid, which possesses a stronger avidity for antitoxin than all other components of the toxin and thus manifests its presence by the fact that to the solution of toxin containing it a certain quantity of antitoxin can be added without lessening in the slightest degree the toxicity. The existence of prototoxoids has been recently denied by Arrhenius as a result of his recalculations of toxins studied by Madsen. His criticism, however, is certainly not applicable to a toxin which has been continuously tested by me, nor to another investigated with the utmost precision by Theobald Smith. Furthermore, prototoxoids have been positively demonstrated in the case of other poisons and analogous substances, ferments, agglutinins. Inasmuch as no change of avidity occurs in the formation of toxoids, the demonstration of prototoxoids points to the existence of a partial toxin of strong avidity — "prototoxin."

The second zone in the spectrum is of relatively short extent and is characterized by the fact that one combining unit removes only a fraction — one fifth to one tenth — of the lethal dose. This is the zone of decisive significance for Arrhenius's hypothesis.

The third zone I call the "toxone-zone." Toxone is one of the primary products of secretion of the diphtheria bacillus, possessing the same haptophore group as the toxin, but of far less avidity, and in the process of partial neutralization entering, therefore, last into combination with antitoxin. Its toxophore group differs from that of toxin, being incapable of producing acute effects, cutaneous necroses, death. Toxone is responsible for the diphtheric paralysis occurring between the fourteenth and thirtieth day in guinea pigs. Mixtures of toxin and antitoxin in which all the toxin-components are neutralized, while only the toxone remains unneutralized, produce in guinea pigs, without any local or general lesion, the phenomena of diphtheric paralysis.

PHYSICO-CHEMICAL OBJECTIONS AND THEIR REFUTATION.

Arrhenius by following a plan of experimentation introduced by Danysz has shown in the neutralization of ammonia by boric acid, that if 1 part of boric acid lessens the hemolytic effect of a given quantity of ammonia by 50%, the subsequent addition of 2, 3, 4 parts causes a further diminution of only 16.7, 8.3 and 5% respectively. It would be absurd to conclude from these experiments that ammonia is not a single substance but is composed of several constituents of various degrees of toxicity, of which those with the strongest chemical affinity are first neutralized. Arrhenius, therefore, concludes that inasmuch as the neutralization of tetanustoxin proceeds in the same way it is superfluous to assume the existence of different components and sufficient to assume a single, uniform toxin with weak affinity for its antitoxin.

In reply I may state that at the outset of my investigations I was led to assume a strong affinity between toxin and antitoxin. This opinion in the first place was supported by the experiments of Dönitz and of Heymann who demonstrated the extraordinary rapidity with which diphtheria toxin introduced into the circulation combines with the toxophile receptors in the tissues, which must therefore possess a high degree of avidity. The protective and curative properties of the specific serum indicate that the antitoxins possess at least as strong avidity as the tissue-receptors. Furthermore, the therapeutic experiments of Dönitz on the animal body and of Madsen on red corpuscles prove that the toxin when once bound becomes so firmly fixed that the specific serum after a time fails to produce any curative effect. This indicates that after-fixation of the toxin secondary, chemical modifications transform the primary, labile combination into a stable one.

The large interval between the values of Lo and L† seemed to oppose the acceptance of a strong affinity between toxin and antitoxin. Designate by D the amount of toxin which represents the difference between L† and Lo. From chemical examples it can be easily shown that with poisons of strong avidity the value of D must correspond exactly to one simple fatal dose, whereas with poisons of weak avidity D may be much larger. At last, however, I succeeded in finding a toxin in which D was precisely of the theoretic value 1. Thereby it was in principle shown that toxin and antitoxin unite with strong affinity, and the great variations (from 0–300%) in the value of D presented by different specimens of toxins could be referred to the presence of toxone. Not until I had found this toxin did I come forward with my theory, which I believe to have been framed with due care.

What then is the evidence advanced by Arrhenius in favor of the view that toxin and antitoxin are actually substances of weak avidity? The biological facts which speak against this view are either entirely ignored by the authors or set aside under arbitrary assumptions of an inexact investigation. The sole support is the tetanus-curve, concerning the value of which I shall speak presently. Experimental investigation should in the first instance have attacked this question.

The entire calculation and reasoning of the authors proceed from the assumption, adopted by so prominent an authority as Professor Nernst, that neutralization of toxin and antitoxin is an interchangeable or reversible reaction. If it can be shown that the process is not a reversible one, then the basis is withdrawn from all the reckonings and deductions of Arrhenius. Unaccountably Arrhenius has presented no experiments upon this point, but Dr. v. Dungern has taken up the subject by applying the procedure used by Danysz for other purposes of successive additions of toxin to antitoxin. By way of example the processes in the production of acetic ether may be selected. Mix 1 equivalent of alcohol with ⅓ equivalent of acetic acid, allow the mixture to stand for a length of time and then add ⅔ equivalent of acetic acid (mixture A); at the same time mix simultaneously 1 equivalent of acetic acid and 1 equivalent of alcohol (mixture B). It is self-evident that the state of equilibrium, when two thirds of the added substance have been transformed, is reached sooner in A than in B. If the two mixtures are examined at a time when equilibrium is established in B, both liquids have of course the same composition. Before this point is reached, however, the transformation is advanced further in A than in B. If we assume in this example that acetic acid corresponds to toxin, alcohol to antitoxin and the ester to the neutral antitoxin-toxin mixture, it is readily seen that by the addition of acetic acid in two periods the mixture A is deprived of toxicity sooner than is the control B with simultaneous addition.

Von Dungern's experiments were made with a diphtheria poison of which the Lo dose was 0.6 ccm. and the L† dose 0.78. To 1 immunity unit of antitoxin he added first one third of the Lo dose — 0.2 toxin, and after twenty-eight hours determined the fatal dose of toxin. It was found that this mixture after the addition to it of only 0.39 ccm. of toxin was fatal to guinea pigs. Thus in accord with Danysz's previous observations, it was demonstrated that an increase of toxicity appeared when the toxin was added in two portions, since under these conditions the L† dose was reduced from 0.78 (in the case of simultaneous mixture) to 0.59. (If antitoxin was added in successive fractional portions of the immunity unit to the toxin solution the L† dose of course remained 0.78.) From his experiments von Dungern concludes:

(1) The union of diphtheria toxin and antitoxin does not proceed in accordance with the ammonia-boric-acid scheme.

(2) The observed phenomena of combination are explicable only upon the assumption of a complex constitution of the diphtheria poison.

(3) The facts find their best explanation in the action of a toxone and epitoxonoid. Epitoxonoid is present in considerable quantity in toxic broth. The immunizing action of apparently completely neutralized toxins can thereby be explained.

(4) Constituents of the diphtheria poison with weak affinity after combining with antitoxin may eventually become so firmly bound that this union can be only incompletely broken by toxin of stronger avidity. The strength of the combination is of significance for the action of antitoxin. (Demonstration of the relations by schematic charts.)

At my suggestion Dr. Sachs has undertaken the same experiments with tetanolysin. In one experiment 0.02 ccm. tetanus serum served as the immunity unit. This neutralized completely 0.3 ccm. (Lo dose) of a definite toxin solution, while a mixture containing 0.7 (L†) toxin effected complete hemolysis. By adding to the serum the Lo dose (0.3) and again after twenty hours adding more toxin the L† dose was found to be reduced to 0.45. It is consequently demonstrated also for tetanolysin, which is the axis of Arrhenius' investigations, that the premises underlying his entire calculations and construction of graphic curves are inapplicable. Hereafter the linear representation of the calculated values of toxins, as demanded by Arrhenius for all cases, must be rejected wherever the phenomenon of Danysz is present.

Also from the purely physico-chemical point of view, as I am authoritatively informed, the conceptions of the authors present numerous vulnerable points which will soon be exposed by competent authority. I confine myself here to the presentation of certain opposing arguments of a biological nature, and begin with tetanus.

Tetanolysin, on account of its ready decomposability and the difficulty of conducting hemolitic experiments with absolute accuracy, is ill adapted for precise determinations of the kind

under consideration. Neutralization experiments with this substance encounter on the one side the Scylla of incomplete union and on the other the Charybdis of destruction of the poison.

It is incomprehensible that the calculations should be based on the assumption that the toxin consists of molecules of poison with uniform composition. On the contrary, it is highly probable that specific toxoids are present, which, of course, must enter into the calculation as well as the toxins. The amount of toxoid was, however, unknown and indeed at present is indeterminable. To escape from this dilemma Arrhenius, as he has kindly informed me, assumes that the production of toxoid results from an equable weakening of all the toxic molecules. Thus the toxic solution would not be a mixture of dissimilar components. This assumption must be rejected on general grounds (examples) and is disproven by the demonstration of prototoxoids, as well as by the investigations of Tarobi on ricin-toxoids.

It is likewise incomprehensible that Arrhenius should leave entirely out of account the tetanophilic receptors of the red corpuscles and make no calculation of the amount of poison fixed by the corpuscles. These anchor no small part of the simple dissolving dosis, which is the dominating factor in the experimental procedure.

Even upon the assumption of a toxin of uniform composition the calculation of the state of equilibrium must, therefore, take into consideration three factors capable of combining with antitoxin — toxin, toxoid and receptor.

To meet these objections, which might easily be augmented, Arrhenius has scarcely anything of a positive character to offer save the tetanolysin table No. 19, which corresponds fully with the theoretical calculation. It must here be emphasized that in contrast with a large number of unsuccessful results this favorable one was secured but once. I have lately become very skeptical as regards the demonstrative value of this curve, inasmuch as both of Madsen's diphtheria curves, which on account of their correspondence with the calculation was published as a complete refutation of my conceptions, have since been shown to be erroneous. I communicated by letter to Professor Arrhenius that the numbers underlying these curves were in entire harmony with my conceptions, and I was astonished to be informed that a recalculation occasioned by my criticism showed that a part of the figures underlying the construction of the curves were wrong. Without my letter Madsen's curves would probably have stood for decades as an argument against my views. At any rate these considerations demonstrate that from erroneous figures, curves in entire harmony with the theory may be constructed.

At present there are no satisfactorily demonstrated facts which warrant the application of Arrhenius' conceptions to the diphtheria toxin. It may be mentioned that an extensive investigation by Morgenroth has positively overthrown Madsen's assumption that the toxone-effect is merely an expression of the action of toxin modified by antitoxin.

The large variations of the dissociation-constants, as determined by the calculation, necessitate the assumption of an extraordinary multiplicity of poisons, whereas my conceptions are satisfied by the acceptance of a much smaller number.

It is unnecessary to have recourse to further arguments when I mention in conclusion that my views furnish a far better explanation than those of Arrhenius of numerous facts in the domain of toxins, such as the process of spontaneous enfeeblement of toxins, their passage into a state of stability, the reduction of the toxone zone, the capacity of completely neutralized poisons to produce antitoxin (Park) by means of von Durgern's epitoxonoids. I am convinced that what I have established through long years of work concerning the nature of the diphtheria poison will withstand the Northern storm and with the course of time prove itself to be real and vital.

LECTURE III.

CYTOTOXINS AND CYTOXIC IMMUNITY.

Abstract.

DEVELOPMENT of our knowledge concerning bacteriolysins and cytolysins. Bacteriolysins (Pfeiffer's phenomenon in cholera) and their mode of action. Agglutinins (Gruber, Durham and Widal). Cytolysins (Belfanti, Metchnikoff, Bordet, von Dungern, Landsteiner).

Importance of this domain constantly increasing. Literature of recent years almost too great to master.

The hemolysins especially suitable for theoretical studies; they made it possible for me to explain quite simply the manner in which these substances arise, and the mode of their action.

MODE OF ACTION OF AMBOCEPTORS AND COMPLEMENTS.

The interpretation of Pfeiffer, Metchnikoff and Bordet's demonstration of the participation of two substances in producing bacteriolysis was made clear by means of absorption experiments and experiments at low temperatures. Establishment of the amboceptor theory. The amboceptor (the specific product of immunization) unites by means of one haptophore group with the receptor of the susceptible cell, and by means of another haptophore group with the complement. The complement has one chemical group suitable for union with the amboceptor, and another, the zymotoxic complex — which causes the injury to the cells. Bordet's opposition; his theory of "sensitization."

For the theory of direct union (between cell-receptor, amboceptor and complement) the following evidence may be given:

(1) Demonstration of well-established chemical analogues.

(2) The side-tracking of complements by an excess of free amboceptors, as was proved in the case of bacteriolysis by Neisser and Wechsberg, and firmly established by Morgenroth for hemolysins by the employment of anti-amboceptors.

(3) The existence of products from the breaking down of amboceptors — amboceptoroids (Wechsberg, Muller, Mereschi), which no longer are anchored by the cell, but still are able to divert complements. The amboceptor, then, acts like a dye-mordant. The complete hemolysin forms thus an analogue of a toxin, in which one part, the amboceptor, corresponds to the haptophore group, the second part, the complement, to the toxophore group.

The complement, contrary to the conception of Bordet, is not a simple unit, but is made up of a great many partial-complements, which side by side and simultaneously become attached to the amboceptor. Accordingly the amboceptor contains a whole series of complementophilic groups, and not a single one, as was at first supposed. The diverse amboceptors which can belong to one animal species differ specifically only in those haptophorous groups which are concerned in the union with the cell, while they are identical, or at least very similar, as far as their complex complementophilic component is concerned.

Proof of the multiplicity as opposed to the unit of complement can be brought:

(1) By the method of partial absorption.

(2) By the selective destruction of single partial-complements.

(3) By the demonstration of anticomplements which inhibit only a certain part of the complement action.

(4) By the evidence brought forward by Metchnikoff, that by the disintegration of microcytes or of macrocytes, at least two complements arise, which differ in their effects, one producing hemolysis, the other bacteriolysis.

In each individual instance of lytic action it is not necessarily the whole series of complements, but only a certain fraction of them (the dominant complements), which is concerned.

THE THEORY OF AMBOCEPTORS.

Amboceptors are cell products. In the protoplasm of cells, in addition to the simple receptors which give rise to antitoxins, there are more complicated receptors, which serve in the absorption of the more complex albuminous molecules. Two varieties of these receptors are to be distinguished:

(1) Receptors of the second order, which, in addition to their anchoring, haptophore group, possess a chemical complex, which is distinguished by its power to set going coagulative processes, and which is generally quite resistant to heat. As the result of immunization with cells or albuminous material, receptors of this order appear in the serum as coagulins or agglutinins.

(2) Amboceptors arise from receptors of the third order, which are concerned with the fixation and assimilation of the very largest food-molecules. For the katabolic changes of these molecules there are needed a whole sequence of processes, which can only be carried out by a multitude of fermentative agents such as the complements. Corresponding to this conception these receptors possess a multitude of complementophilic groups. The reason why these adjuvant groups do not actually occupy the receptors — which would present the simplest solution — may be looked for in their extraordinary lability, which may render necessary a continual rehabilitation and renewal of the fermentative apparatus. This view is favored by the fact that such an arrangement does exist in the case of the receptors of the second order, whose agglutinophore complex, as has been mentioned, is relatively stable.

The purpose, however, of protecting these complements from destruction would not be attained if the affinity of the complementophilic groups were such that the complements were continually being absorbed by the receptors. From the teleological point of view a most wonderfully well adjusted mechanism controls the complement-absorption, for by union of the haptophore group with a nutrient molecule the avidity of the complementophilic group of the receptor is so augmented as to permit its combination with a complement. This is then a sort of economy which enables the labile ferment to reach the cell at exactly the favorable moment for its utilization. The proof of the actual occurrence of this increase in avidity is furnished by "Bordet's phenomenon," in which a selected material, after it is laden with amboceptor, is able to remove complement suitable for itself and also for all other combinations.

Amboceptors can be produced by immunization which are specific antibodies for a great number of albuminous materials, and it is to be hoped that the study of these amboceptors will give us a much clearer view than we can now obtain, into the process of assimilation.

We must suppose that those parts of the protoplasm which are bearers of the receptors of the second and third orders must be completely immune to the destructive action of the zymotoxic groups of the complements. Although it is impossible with the means at our disposal to bring forward direct proof of the spatial separation of these particles of protoplasm, yet we are forced to believe that such a separation exists, from the circumstance that complements are able to destroy their own cells if they are artificially brought into relationship with certain other constituents of the cell. This is effected with extreme ease by the aid of cytotoxic amboceptors, which can be readily produced for nearly all kinds of cells. Thus the erythrocytes of a sheep, which are laden with specific hemolytic amboceptors, will show no sign of injury so long as they are suspended in normal salt solution, but they will be dissolved at once upon addition of the very same serum which was removed from the sheep with the erythrocytes. Thus the most

important agents of the body economy are turned into most deadly weapons if brought into a false relation to the protoplasm. In an analogous manner Kyes has shown that lecithin, the existence of which in the envelope of the red blood corpuscles preserves their integrity, undergoes, in the presence of the cobra-amboceptor, an intracellular displacement — heterotopy — which is a condition leading to the destruction of these corpuscles by the venom.

PLURALISTIC CONCEPTIONS.

The cells are complexly constructed systems. Each of them possesses an extremely great number of separate components which from a purely theoretical point of view are capable of producing an equally great number of specific reaction products. It is probable that each morphologically different cell constituent — protoplasm, nucleus, cilium, etc. — is capable of producing a serum specifically antagonistic to this particular structure, which serum in turn may be made up of a whole series of partial components (*cfr.* Theobald Smith's investigations of antibodies directed against the flagella and body substance respectively of bacteria).

Review of the conditions which lead to the result that the number of specific antibodies produced by immunization is usually much smaller than the number of different antigenetic substances inoculated. Deficiency of suitable receptors in the immunized species of animal; insufficient formation or insufficient shedding of these receptors; protection against auto-intoxication (*horror autotoxicus*).

Description of methods for demonstrating phenomena of plurality. Crossed absorption experiments and employment of anti-amboceptors. Examples from hemolysis. von Dungern's attempt to separate an antigenetic group common to two substrata for the production of a single, isolated anti-serum. An immune serum in the former restricted sense of absolute specificity does not exist, we can speak only of the specificity of *one* amboceptor type for *one* definite causative substance (antigen). Since, however, the immune sera contain a great number of different fractional components, which in turn can occupy a correspondingly great numoer of receptors, furthermore, since not the whole number of receptors of any one cell are peculiar to this cell, but a variable number of them are also common to other nearly related cells, we must conceive that a serum produced oy immunization with a certain type of protoplasm, while it exercises its chief action against this protoplasm, also exhibits its action upon a whole series of other substrata of protoplasm. The more closely related the receptor apparatus of two immunity-producing agents is, the more completely do the sera produced by them correspond in their action.

It is possiole at this time to refer only to certain topics from the extensive domain pertaining to the pluralistic conceptions.

(1) The controversy over alexins. These, formerly supposed to be simple units, correspond to a very great number of different agglutinins and amboceptors. These normal substances, destructive to the cell, may arise homologously (for example, the colilysins), or heterologously (cholera-amboceptors in the goat; trypanosomacides of human serum). An aim of therapeutics should be the obtaining in serum not only of complements but especially of the powerfully curative amboceptors of normal organs.

(2) Alterations in the receptor apparatus of the blood corpuscles and their relations to the isolysins. R. Koch's studies of isolysins in coast fever.

(3) Determination of philogenetic relationship. Uhlenhuth's and Wassermann's blood test.

(4) Relationship between the virulence of bacteria, the receptor apparatus, and the development of immunity (Welch, Walker, Hamburger, Pfeiffer, Wassermann).

(5) Practical results from the production of bactericidal sera.

Original Articles.

TREATMENT OF PROSTATIC HYPERTROPHY.

THE following papers on the general subject of "The Treatment of Prostatic Hypertrophy," were read at a meeting of the Section for Surgery, Suffolk District Medical Society, March 2, 1904.

SURGICAL ANATOMY OF THE PROSTATE.

BY L. R. G. CRANDON, M.D., BOSTON,

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THE normal prostate is classically and well described as a chestnut-shaped body adjoining the neck of the bladder, inclosing the first part of the urethra. The urethra runs nearer the anterior than the posterior aspect of the gland, that is, about .7 cm. from the former and .9 cm. from the latter, but it varies. The narrow end or apex of the prostate is directed downward and forward to within 1.5 cm. of the symphysis, to which it is connected by thickenings of pelvic fascia. The posterior part or base is close to the rectum, through which it may be felt, about 6 cm. above the anus. Its measurements are about 3.5 cm. across at its widest, *i. e.*, bilaterally; 3 cm. from base to apex, and about 2.5 cm. in thickness, *i. e.*, in the direction of the urethra. The weight of the normal prostate ranges from 13.6 gm. to 21.4 gm., the average being 18 gm. These limits are not strict. A sheath derived from the rectovesical fascia incloses the prostate and contains the prostate veins. This capsule is fairly distinct. The rectal surface shows two grooves which meet in front and indicate the course of the seminal ducts. The gland presents a lateral lobe on each side of the base, and a middle portion or isthmus which is included between the ejaculatory ducts and the neck of the bladder.

The prostatic urethra, about 3 cm. long, is



FIG. 1. Nerve-plexus between prostate and rectum; mostly non-medullated fibers.

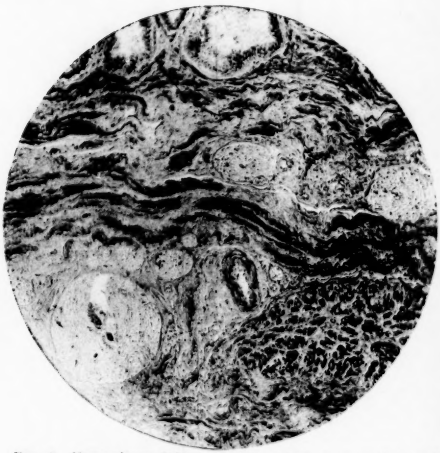


FIG. 2. Nerve-plexus behind prostate — mostly cross sections and largely of sympathetic origin.



FIG. 3. Nerve ganglia in recto-prostatic plexus.

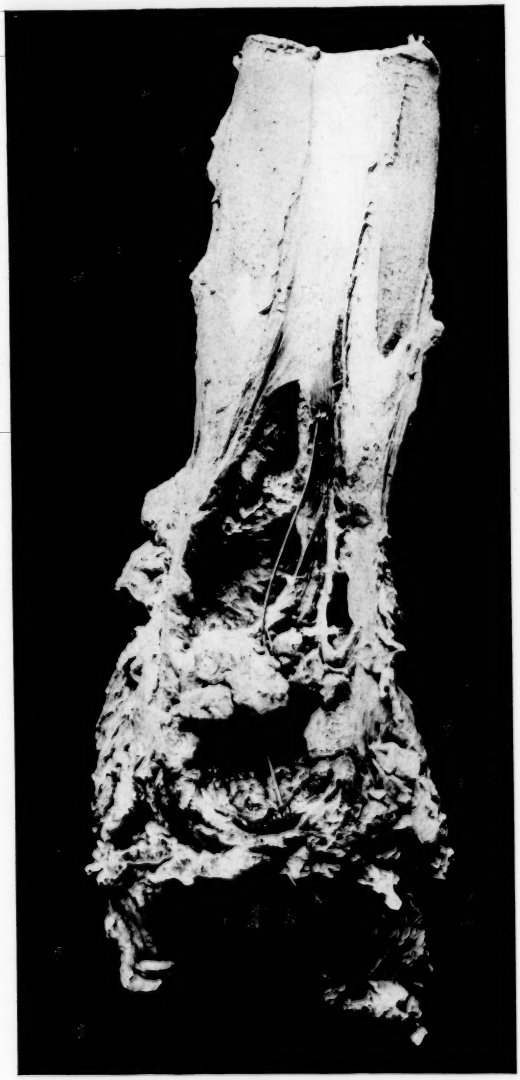


FIG. 4. Straw shows where the urethra was before perineal prostatectomy by "combined operation." Specimen removed post-mortem, three days after operation.

dilated in its middle, where there arises from its floor the verumontanum (Colliculus seminalis, Caput gallinaceum). The ejaculatory seminal ducts, passing forward from the seminal vesicles, traverse the lower part of the prostate and empty into the urethra by two slit-like openings on or very near the crest of the caput. The prostatic ducts empty through the wall of this portion of the urethra by from 12 to 20 openings, most of them on the floor of the urethra in a fossa on each side of the caput, called the prostatic sinus. The two largest prostatic ducts empty at the caput just behind the mouths of the ejaculatory ducts. In the middle line, close in front of the orifices of the ejaculatory ducts, in the forward part of the caput is the prostatic utricle. This is a blind pocket, about .8 cm. long, extending upward and backward beneath the isthmus.

Histologically speaking, the prostate normally is made up of smooth muscle-fibers, of rather cellular connective tissue, and of true gland-tissue in the proportions roughly of 1: 1: 2, together with more or less elastic tissue.

The principal anatomical points of the prostate which are of importance to the surgeon are, (1) its nerve supply; (2) its relation to the urethra; (3) its relation to the peritoneum.

The nerve supply of the prostate is derived from the inferior hypogastric plexus which in its turn has sympathetic origin from the superior hypogastric plexus and central origin from the sacral nerves and ganglia. Filaments from the inferior hypogastric plexus come to surround the posterior or rectal aspect of the prostate in a fine meshwork of relatively large nerves and many ganglia. The double origin of these nerves is clearly shown when they are stained for axis-cylinders (Pal-Weigert). (Figs. 1, 2.) The medullated or central nerve-fibrils stain black and take up about $\frac{1}{10}$ to $\frac{1}{20}$ of the total cross-section. The ganglia are fairly large (Fig. 3). This is the network of nerves mostly of sympathetic origin, which must be torn through in a perineal prostatectomy.

The relation between the prostate and the urethra is not only intimate from the passage of the urethra through the body of the gland, but the mucosa of the urethra is closely bound to the prostate by the ejaculatory ducts and the prostatic ducts which empty into the urethra and thereby attach urethra to prostate by from 14 to 22 points of adhesion. In a strict anatomical sense, therefore, the normal prostate may not be removed without tearing the urethra. That this anatomical condition is rendered much worse to the surgeon by the changes of the sclerosis of age and inflammation is shown by this specimen (Fig. 4).

The relation between the prostate and the peritoneum is variable. In measuring the distance from the depths of the rectovesical pouch to the central point of the perineum it was found in 20 cases to vary between 5 and 9 cm. and increases when the bladder is full. In perineal prostatectomy the lacerations may be found from $\frac{1}{2}$ to 2 cm. from the peritoneum, and virulent infection of this pouch, without macroscopic injury, has been demonstrated in at least two fatal cases, to my knowledge.

The Gross Pathology and Mechanism of Prostatic Obstruction.

by arthur l. chute, m.d., boston.

The frequent, painful feeble and usually incomplete emptying of the bladder seen in elderly men, which we term prostatic obstruction or prostatism, is not dependent on any single lesion of the prostate, either when considered from the point of view of its gross or its microscopical pathology.

The etiology and pathological histology of these changes in the prostate and of the changes secondary to the urinary obstruction are of great interest; they are, however, for the most part beyond the scope of this paper and do not so intimately interest us as do the gross anatomical changes. These gross changes are what we have to deal with in our operative attempts to relieve prostatic obstruction, and the success of our attempts will depend largely on our knowledge of them.

Mere general enlargement of the prostate, as shown by digital examination, does not necessarily produce prostatism, even a considerable increase in size may be symptomless; on the other hand a marked degree of obstruction and even complete retention may occur with a prostate which shows little if any appreciable enlargement. To have symptoms it is necessary that the changes in the prostate be such as to produce an obstacle to emptying the bladder. This obstacle is usually situated at the vesical neck or entrance to the prostatic urethra. Occasionally obstruction has been caused by the jutting of an enlarged lateral lobe into the prostatic urethra in such a way as to occlude it by lateral pressure; instances are also recorded where a small prostatic out-growth has blocked the lumen of the urethra in its course, but as a rule the obstruction is at the bladder outlet. The changes occurring in the shape and distensibility of the prostatic urethra are undoubtedly contributory; it is, however, very doubtful if in most instances they are the chief element in causing the urinary obstruction.

Whatever the conclusions of the pathologists and those particularly interested in the etiological aspect of the question, we have clinically two types of disease — First, the type characterized by a small, hard, fibrous prostate, which has the outward appearance of being of inflammatory origin, and second, the type in which the gland is enlarged, softer than in the first type, often irregular or lobulated on digital examination. The latter is usually spoken of as hyperplastic, adenomatous, fibro-adenomatous, or fibro-adenomyomatous, depending upon the relative proportions of the various constituents which different observers have found.

In the small fibrous prostate, the obstruction in a few cases seems to be due purely to the infiltration about the vesical end of the prostatic urethra, and the decreased distensibility of it. This destroys its normal funnel-shaped entrance and offers a difficulty to passing urine. If this condition is progressive the resistance becomes greater than the bladder can overcome, even with its compensatory hypertrophy, and we have a residual urine and the formation of a slight bas-fond. This places the already weakened bladder at a still greater disadvantage, since now the outlet is not at the lowest part of the organ. The repeated and unsuccessful attempts of the bladder to completely empty itself lead to further muscular atrophy and fibrous infiltration of its walls which lessen the expulsive power of the organ. This may be steadily progressive and is not necessarily attended with subjective symptoms other than frequency and diminution in the size and force of the stream. In an uninfected bladder the overflow of distention, or complete retention due to some purely circulatory change, may be the first real sign the patient has that something is radically wrong. With these fibrous prostates there is often an outgrowth at the urethral opening.

The second type of obstruction is characterized by a considerable enlargement of the prostate. There seems reason to believe that this may at times be a hyperplasia, though in the greater number of instances it is a benign neoplasm. The enlargement of the gland may be general or the growth may affect one lobe or part more than another.

With a general enlargement of both lateral lobes the extension will be upward to a greater or less degree. Extension downward is prevented by the firm triangular ligament, while the pubic arch prevents extension forward. There is opportunity for extension backward toward the rectum and this usually takes place to a considerable degree, but the lack of resistance in the direction of the bladder, together with the fixation of the bladder end of the urethra, leads commonly to an extension into the floor of the bladder. This encroachment of the prostate carries with it the urethral opening and raises it above the lowest part of the bladder, producing a condition in which the bladder cannot completely empty itself without extra work. This leads in time to a residual urine. Once we have a residual urine, a vicious circle is established, which in the natural order of things will be slowly progressive. This applies to all cases of prostatic obstruction. A symmetrical growth of the lateral lobes may, at the same time that it extends backward into the bladder, roll forward so as to embrace the anterior surface of the prostate, producing a projection into the bladder not unlike an os uteri. As there is more prostatic tissue below the urethra than above, the posterior lip of this projection is usually the larger. Variations in these last two types produce the so-called "horse-collar" obstructions.

In another arrangement both lateral lobes extend into the bladder and an off-shoot from one lobe bulges up under the trigone. These three globular masses about the bladder outlet may so dilate the prostatic urethra as to convert it into a cavity which holds more or less urine.

In obstruction by hypertrophied lateral lobes the prostatic urethra is elongated and is shown on cross section as a vertical slit. There is atrophy of the mucous membrane and the submucous tissue. The urethra will show a marked lateral deviation if one lobe encroaches more than the other. It will not show so marked a prostatic curve as in the cases with the median obstruction. The lateral pressure on the prostatic urethra is probably not so important a factor in producing the obstruction as the raising of the bladder outlet, though where one lobe presses so sharply as to cause a lateral deviation of the urethra it may add a considerable element to the obstruction.

The irregular forms of prostatic growths are found in the greater number of cases of obstruction. They are usually adenomata, and produce obstruction in direct ratio to their proximity to the bladder neck. Thus a considerable adenoma in the outer part of a lateral lobe will cause less obstruction than a smaller one nearer the urethral opening. These irregular growths show an almost infinite variety. A growth from one lateral lobe may extend into the bladder and an off-shoot project forward under the trigone in the form of a middle lobe. If sessile, it raises the bladder outlet, if pedunculated, it may form a valve. These out-growths from the lateral lobes may appear in other positions than under the trigone. In a patient on whom I operated a few days ago a pedunculated adenoma from the left lateral lobe had formed a very thick flattened valve, hinged on the left and a little above, completely closing the bladder outlet and making the patient wholly dependent on a catheter for more than two years. As the greater bulk of prostatic tissue is below the urethra these outgrowths commonly appear behind the urethral orifice, but are by no means confined to this position.

Beside these several variations which are the outcome of growths derived from the lateral lobes there are growths arising from glands which are not supposed to be anatomically connected with the prostate. These usually take the form of a middle-lobe obstruction.

There are glands which have a similar structure to prostatic tissue, and which have been found by some observers with considerable frequency *in* the mucous membrane at the trigone and outlet of the bladder. It is supposed that certain sessile and pedunculated growths take their origin from this tissue.

Certain other foci of glandular tissue, supposed to be aberrant bits of prostate gland, have been found *under* the mucous membrane in the region of the bladder outlet, and are considered to be the probable cause of some instances of third-lobe obstruction, and also as the cause of some cases of obstruction by a posterior lip or Mercier's bar. In theory, growths which project into the

floor of the bladder and have muscular fibres in front of them are derived from the lateral lobes; those that have muscular fibres behind them are supposed to be derived from the glands in the mucous membrane or from centers of aberrant prostatic tissue.

An important element in prostatic obstruction and one which, in its time of appearance may precede all inflammatory phenomena, is the occurrence of enlarged tortuous veins about the bladder outlet. These veins increase the frequency and pain of urination and are a common cause of hemorrhage; sometimes they undgero attacks of phlebitis and become thrombosed. They are supposed to play an important part in the causation of nocturnal frequency. Their engorgement is usually the determining factor in sudden retentions coming on after fatigue and exposure. Instances have been reported in which these veins have formed hemorrhoidal masses which have played an important part in obstructing the bladder outlet.

The back pressure due to urinary retention is an important factor in the changes secondary to prostatic obstruction. To it is largely due the thinning, trabeculation and sacculation of the bladder walls. Under this back pressure the ureteral openings become distended and incompetent, permitting a dilatation of the ureters and kidney pelves, while the pressure on the kidney substance leads to an interstitial process.

When by any of the above mentioned means the obstruction has become such that the bladder does not completely empty itself, conditions are most favorable for urinary infection. The urinary stasis destroys to a large degree the resistance of the bladder, and renders it almost certain that the entrance of organisms will be followed by cystitis. Cystitis, though not a necessary result of prostatic obstruction attended with residual urine, occurs in a large proportion of cases, and plays a large part in producing the classical picture. With its advent the seriousness of the condition is much increased. This infection of the bladder usually takes place by way of the urethra and is due most often to catheterization, although it is supposed that at times the infection takes place through the intestinal and bladder walls, or by way of the kidneys. The cystitis makes the bladder more irritable, the edema increases the obstruction to urination, while the infiltration diminishes the expulsive power of the bladder walls. If the ureteral orifices are incompetent the infection spreads to the kidneys, producing on its way a ureteritis and possibly a peri-ureteritis. In the kidneys a pyelitis develops, sometimes a pyelo-nephritis, and occasionally foci of suppuration are found in that organ. It is hard to over-estimate the importance of urinary infection.

The retained ammoniacal urine makes stone in the bladder a very common complication, especially in long standing cases. Where these stones are in a bas-fond or in pockets, the classical symptoms are often lacking and their diagnosis difficult. Their recognition is important from the standpoint of therapeutics.

Some recent work of Wallace[1] is of great interest on the much discussed point whether in hypertrophy of the prostate this organ develops a distinct capsule. He finds that adenomatous prostatic growths are often surrounded by a laminated layer of tissue which allows of their easy enucleation. He demonstrates with apparent conclusiveness that this is not a thickening of the true fibrous capsules of the prostate, but that it is formed from prostatic tissue surrounding the growth, which has been compressed as the growth has increased in size. This capsule varies in thickness and is densest where the pressure is greatest. In the walls of this pathological capsule Wallace has found glandular elements, which he believes are the remains of the compressed prostatic tissue. This capsule has the greatest surgical importance. Upon it depends the feasibility of enucleation, the probability of being able to spare the prostatic urethra and the possibility of a recurrence after enucleation.

A review of the gross pathological lesions found in prostatic obstruction demonstrates very clearly that no one operation is equally adapted to all cases, that our hope for better results lies in the more accurate diagnosis of the obstructing lesion in the individual case, and the selection of the operative procedure best calculated to meet its requirements.

Choice of Operation for Prostatic Hypertrophy.

BY F. S. WATSON, M.D., BOSTON.

No one method has established an exclusive monopoly in the surgical field of prostatic operations. The last twenty years' experience has eliminated from the list, a number of operative procedures devised for the treatment of this malady and its consequences and left us the following from which to choose:

(1) The palliative operations of perineal and suprapubic drainage.

(2) The Bottini operation.

(3) The total removal of the hypertrophied masses by various perineal operations and their modifications.

(4) The same by the suprapubic and the combined operations.

(5) The indirect, or sexual operations of castration and vasectomy.

The primary factors determining the choice of one or another of several surgical procedures, all having the same object in view, are —

(1) Their relative dangers.

(2) Their relative limitations.

(3) The character of their respective results.

Operative Dangers.

These are of two sorts. (1) Those to which the patient is exposed in a general way, and they

[1] Brit. Med. Journ, 1903, Vol. i, p. 764, and 1904, Vol. i, p. 259.

are shown by the mortality attending the performance of the various operations. (2) Those which are in a greater or less degree peculiar to one or another of the operations, and these we learn by the study of the causes of death in the fatal cases in connection with each particular method of operating.

In order to determine these factors, I have collected and analyzed 2,600 cases in which various kinds of operations have been done. This series does not include all the cases reported, by any means, but may be taken as a fair presentation of the experience in the operative treatment up to the present time.

In calculating the mortality, only such deaths as occurred within two months after operation have been considered as operative deaths. All deaths occurring within this period which were clearly due to other causes than the operation have been excluded. All those in which there might be a doubt as to whether the operation was the cause of death or not, were counted as operative deaths.

Briefly summarized, the mortality percentages of the various methods which are represented in the series, are as follows:

Method of Treatment by Catheterization	Cases.	Deaths.	Mortality.
Rovsing	126	10	
Casper	51	3	
Watson	30	3	
	207	16	7.7%
Palliative Operations. Drainage	146	49	33.0%
Partial Prostatectomies	133	13	10.2%
Total Removals — *Perineal*	530	33	6.2%
Total Removals — *Suprapubic*	243	28	11.3%
Bottini	1,164	69	6.3%
Castration	210	34	16.2%
Vasectomy	252	21	8.3%
	2,678	247	

Two hundred and seven cases treated by the catheter in the ordinary way have been included for the sake, so far as possible, of allowing a comparison of the operative methods with this one.

It will be seen that the mortalities of the Bottini and the perineal operations are the lowest of all the methods, and that they are practically the same as compared with each other. So far as this factor is concerned, therefore, they are on an equal footing, and are both preferable to the other methods.

The high mortality of the palliative operations — 33% — does not represent deaths due to the operations *per se*, but is owing to the fact that the majority of the patients were in a dangerous condition at the time, and catheter treatment being for one cause or another impossible, and something to relieve suffering being imperatively demanded, the only course open was that of the operations for drainage. Another purpose of the palliative operations has been that of improving the patient's condition in order to enable him to support a more radical procedure.

And finally these operations have been employed as final measures, the surgeon being content if he has succeeded in securing a reasonable degree of comfort for his patient by means of drainage. This Sir Henry Thompson used to advocate many years ago and reported some cases in which the patients had lived on in comfort for a long time with suprapubic drainage.

The high mortality of castration together with the uncertainty of its results has displaced it from favor recently, after it had been welcomed with strong hopes that it might prove the royal road to successful solution of this difficult problem; the same has been true of vasectomy in a great degree, and the profession has, after according these two methods a very fair trial, once more become faithful to its former methods of treatment by means of the three operative procedures, the Bottini, the perineal and the suprapubic radical operations. These three only will therefore be dealt with in what follows.

DANGERS MORE OR LESS SPECIAL TO EACH OPERATION, AS SHOWN BY ANALYSIS OF CAUSES OF DEATH.

The four factors, uremia, sepsis, shock and pulmonary complications, account for all but a very small number of deaths, and are therefore the only ones included in this analysis.

Bottini	27.0%	Uremia
Perineal Operations	35.0%	Uremia
Suprapubic Operations	34.0%	Uremia
Bottini	52.0%	Sepsis
Perineal Operations	17.8%	Sepsis
Suprapubic Operations	8.6%	Sepsis
Bottini	5.0%	Shock
Perineal Operations	21.4%	Shock
Suprapubic Operations	30.0%	Shock
Bottini	8.0%	Post-Operative Pulmonary Complications
Perineal Operations	17.8%	Post-Operative Pulmonary Complications
Suprapubic Operations	22.0%	Post-Operative Pulmonary Complications

Uremia is, as we know, the most serious danger in connection with prostatic operations, but there is not enough difference in the percentages of deaths due to it attaching to any one of the methods as compared with the others to give it value in determining the choice between them.

The largest share of danger from sepsis belongs to the Bottini operation, which on the other hand has a minimal proportion from shock and post-operative pulmonary complications, while the contrary is true of the other two methods.

LIMITATIONS OF THE INDIVIDUAL OPERATIONS IMPOSED BY LOCAL CONDITIONS.

The following are the limitations to the employment of the *Bottini operation:*

(1) Inability to obtain a good cystoscopic view of the bladder beforehand.

(2) A contracted thick-walled bladder.

(3) A large middle lobe extending far up into the bladder.

(4) Inability to enter the bladder with the instrument.

There is but one obstacle to the performance of the *perineal operations*. It is the same as that numbered three under the Bottini operation above.

The *suprapubic operation* is made difficult by the presence of a contracted thick-walled bladder, or one that is adherent to the posterior surface of the symphisis pubis.

The following objectionable features attach to the Bottini operation:

(1) Insufficient drainage of the bladder.
(2) Liability to secondary hemorrhage.
(3) Liability to epididymitis and orchitis.
(4) The necessity of performing the operation more than once in a considerable proportion of the cases. (13% of those in which the reports were accurately given had to have the operation repeated.)

In the performance of the perineal operations there is greater liability of injuring the membranous urethra and the rectum, and resulting urinary incontinence and recto-urethral fistula, than in the other two methods.

IMPROVEMENTS IN TECHNIQUE WITH REFERENCE TO THE CHOICE OF OPERATION.

The recent "boom" — if one may use the vulgar term with reference to this subject — which has recently carried the operative treatment of this malady forward so rapidly, especially in France, has been due to two things, chiefly, (1) the more careful selection of the cases, and (2) the improvement in technique. We have said all that is needed with regard to the first; it only remains therefore to speak of the second. The improvements in the technique have been made principally in connection with the perineal operations, and in these the two features which have been made better are (1) The removal of the hypertrophied masses with less injury to the parts included in the operative field, and (2) making the gland more accessible.

In the performance of the perineal operations the latter is accomplished by downward pressure above the symphisis pubis or by the use of one or another of the various forms of tractors, or by the drawing down of the gland by the tips of two fingers in the rectum as was done by Celsus when cutting for stone. Personally, except in very fat subjects, I have always found the suprapubic pressure, either alone or in combination with the use of the finger tips in the rectum, sufficient and a satisfactory means of bringing the gland within reach. There is one objection to the use of tractors having metal blades, which is this: It is at the time when one is separating the most distant parts of the intravesical projections from their attachments that the greatest traction is required, but it is also at that very moment that it is dangerous to apply it, for it is then that the resistance which has up to that time been opposed to the tractor blade by the hypertrophied lobe when still fixed to its surrounding structures is taken away, and if care is not taken the instrument's blade is very liable to tear through the bladder and urethral coverings of the lobes and cause extensive destruction of them.

By whichever of these various means the individual surgeon learns by experience he can best accomplish the purpose, that one is the best for him personally to use.

With regard to the other features of the perineal operations, there are the following things to be considered: (1) The incisions of approach to the gland. (2) The incisions of its capsule. (3) The manner of removing the hypertrophied lobes by which the least injury is inflicted upon the ejaculatory ducts and the urethra, and by which the danger of hemorrhage may be avoided.

These things are accomplished by employing the incision which gives the most open field of operation. This incision is the crescentic cut which passes transversely across the perineum in front of the anus from one ischial tuberosity to the other, and is that introduced by Celsus in his lithotomy operation. It has been modified by carrying an additional cut forward from its center in the median line of the perineum and known as the inverted Y incision. The original cut is sometimes pitched more sharply into the form of a V inverted, which gives enough room usually, but less than the inverted Y incision. This incision has been reproduced several times under different names, but so far as I am aware, it was first applied to the removal of the prostate by Leisrink in 1882.

The ejaculatory ducts may be avoided by, (1) making an incision of the capsule in the median line, opening the urethra well back, in order to avoid so far as may be the membranous urethra, which is one of the most important parts to protect, and then effecting the removal of the gland in two or three portions according as there are bilateral, or bilateral and median hypertrophies present, the lateral lobes being reached, exposed and enucleated from the lateral aspects of the prostatic urethra. Or, (2) by making two parallel incisions in the capsule, one on either side of the median line (not opening the urethra) and just outside each of the ducts. The enucleation is then carried on through first one and then the other of these cuts.

Hemorrhage is avoided by keeping within the outer capsule or sheath of the gland.

RESULTS.

Freudenberg considers the patient *cured* so far as the local conditions are concerned, when he has not more than 50 cc. of residual urine and can but for that amount empty the bladder freely, painlessly and spontaneously. He classes, however, under the single heading of "good results," the cases cured together with those in which marked benefit has followed the operation.

The latter custom is certainly lacking in accuracy, for it permits a wide divergence of opinion as to what degree of improvement shall be considered as sufficient to allow cases to be included in the class of "good results." However, for the sake of uniformity and comparison, I have, in analyzing this present series, adopted the same standards and applied them impartially to all the operations with respect to the use of the terms "cure" and "good results." Analyzed

with these restrictions imposed, the following things are shown:

Bottini's Operation	Cured 30.4%	Good results	84.4%
Perineal Operations	" 60.0%	" "	88.0%
Suprapubic Operations	" 66.0%	" "	90.0%

The proportion of accidents which are shown to have been associated with one or another of the operations is as follows:

In a series of 267 Bottini operations there were 31 or 11% of failures recorded, and incontinence of urine resulted in 7 or 2.6% of them.

In 59 cases reported by Willy Meyer in which the Bottini operation had been performed by him, there were 6 in which epididymitis and 2 in which orchitis occurred. In one of the former suppuration ensued, also in one of the latter, while in another of them there was gangrene of the testicle. Perineal abscess and urinary infiltration occurred in 4 cases owing to the membranous urethra having been injured. In one other case the rectum was injured and recto-urethral fistula resulted. Altogether, then, there were more or less serious complications in 22% of the series.

In 245 cases of perineal operations, there were 2 in which the peritoneum was opened — 7 in which urethro-rectal fistula resulted — and 9 in which incontinence followed the performance of the operation. Altogether 7.2% of accidents.

A small proportion of incontinence and of persistent fistulæ only ensued upon the performance of the suprapubic operation. Altogether about 6% of accidents occurred in connection with it.

CONCLUSIONS.

It will be readily conceded that the following surgical axiom is a sound one.

Of a number of operations all having the same object in view, that one is to be preferred, other things being equal, which accomplishes the object as completely as any other, with the least destruction of tissues involved, and with the greatest safety to the patient.

There can be no doubt but that the above ends are best attained by the perineal operations when done in accordance with their best technique; this fact has been amply demonstrated with regard to the relative dangers, the relative limitations and the relative effectiveness of the results obtained by the three methods we have had under consideration. It is consequently the method of choice. This is not to say, however, that it is the only operation which should be used. On the contrary, both the suprapubic and the Bottini have a well defined place. The former is the operation to be preferred in cases in which a very large middle lobe makes the perineal operations especially difficult. The Bottini operation is to be preferred to either of the others if the patient's condition is such as to expose him to the danger of shock or post-operative pulmonary complications; and finally if one or another of the limitations to the performance of the Bottini operation is present, or there is too grave a general condition of the patient to warrant the employment of the Bottini, and if something must be done to relieve him, we will perform a palliative operation for drainage. The nature of the local conditions we shall have determined beforehand by means of the cystoscope.

RESULTS OF OPERATIONS UPON THE PROSTATE, MASSACHUSETTS GENERAL HOSPITAL,

From Jan. 1, 1892, *to July* 1, 1893.

BY HUGH CABOT, M.D., BOSTON.

This period has been selected because prior to 1892 operations upon the prostate were few and far between and the cases operated upon since July, 1903, are too recent to be of any value as showing results. It is hardly necessary to indicate that in considering these statistics they should not be treated as comparable with the results of any one operator. They represent the results of many operators, both experienced and inexperienced, and they also represent in many cases the results of operation done under conditions so desperate as to give little hope of a successful issue under any method of treatment. Up to within a very few years the cases selected for operative treatment were always the unfavorable ones and must not, therefore, be compared with the results of operations upon cases of election. No selection has been made; all cases have been tabulated; and the results may be taken as showing the most unfavorable aspect of the question.

TABLE 1. This table deals with the mortality of three operations. In the first group were placed the cutting operations upon the prostate; in the second, operations done with the Bottini electrocautery, and in the third group the results of castration. This latter group was added to show that an apparently trivial operation upon men of this age is attended by considerable mortality. In calculating the mortality the number of operations and not the number of patients has been taken. Thus in some cases three operations, separated by an interval of months or years, had been done upon one patient, thus considerably affecting the mortality if only the number of cases had been considered.

TABLE I.

	Number.	Av'age Age.	No. Deaths	Mor'ity
Cutting Operations	53	63+ yrs.	9	17.0%
Bottini Operations	8	61+ yrs.	0	0.0%
Castration	34	66.7 yrs.	5	14.7%

This table gives a fair idea of the mortality of cutting operations in a general hospital during the last ten years. That very much better results may be obtained at the present time by individual operators may be taken for granted. The number of Bottini operations is too small to give any proper idea of the mortality, and the operation will certainly carry with it a quite noteworthy death rate.

TABLE 2. This table deals with the results as far as they can be collected. No case was entered as a result that was not seen or heard

from at least one year after operation. Cases were regarded as cured when they were symptomatically well and either regarded themselves or were regarded by their physicians as cured. No attempt was made to apply the absolute test that the patient should completely empty his bladder at normal intervals. Cases are marked "relieved" when their condition is much better than that prior to operation, but when some frequency or a small amount of residual urine keeps them from being regarded as cured.

TABLE II.

RESULTS OF CUTTING OPERATIONS.

	Cases Heard From.	Well.	Relieved.	Same or Worse.
Number	36.0	11	6	8
Per Cent.	69.3	44	24	32

From this table it appears that about two thirds of the cases operated upon by all methods were improved by the operation. The remaining third were in most cases not essentially worse than before operation, though in two cases their present condition was distinctly more uncomfortable than before operation.

Table 3. In this table I have attempted to compare the results of partial operations with those of complete operations. By partial operations are meant those in which only a portion of the prostate was removed. This was generally a third lobe, removed by the suprapubic route. In some cases a considerable amount of tissue was taken, in others only a small pedunculated growth was removed. The complete operations were largely done either by the combined method, suprapubic and perineal (Alexander), or by one of the modifications of the perineal method.

TABLE III.

RESULTS OF CUTTING OPERATIONS.

	Well or Relieved.	Same or Worse
Partial Operations	57%	43%
Complete Operations	83%	17%

This table shows that the complete operation has given much better permanent results and there are no cases recorded as the same or worse which were not at least as well as before operation. All the cases that were made worse by operation were partial operations.

Table 4. In this table I have grouped all the patients who entered the hospital for treatment of enlarged prostate during the ten years from 1892 to 1902. It will be of interest as showing the number of cases recorded as surgical, that is, requiring surgical treatment. It is also interesting as showing the point of view in regard to the cases suitable for operation and as indicating the waves of surgical opinion which have passed over this community. It will be noted that the statistics reflect very accurately the opinion of the general practitioner in the surrounding country as well as that of the hospital surgeon. Thus during the years 1894 and 1895 the operation of castration was being advised and patients were evidently sent to the hospital for that purpose. The following two years show the reaction which followed the failure of this operation to do all that was claimed for it. The years 1898 and 1899 show the impetus given to prostatic operation by the free discussion of Alexander's combined method which followed his paper read here on that subject. The year 1900 shows a temporary reaction, while the following two years show the influence of the belief in perineal prostatectomy and the increased use of the Bottini operation.

TABLE IV.

Year.	'92	'93	'94	'95	'96	'97	'98	'99	1900	'01	'02
Total No. Cases	4	6	13	28	3	17	37	43	24	36	27
No. Operated	1	1	4	10	1	4	23	17	7	19	13

If the year 1903 had also been added to the list the tendency to operate upon more cases out of the total number submitted would be still more obvious as the records of that year show very clearly the influence of perineal prostatectomy.

In closing I would say that I have collected these cases at the request of the surgical staff, and think that some credit is due them for their willingness to allow their cases to be thus roughly grouped together since they give a very unfavorable idea of the condition of operative surgery if taken at their face value. It is to be hoped that the limitations of such a series of statistics will be borne in mind and that they will be allowed only such weight as they deserve and that no attempt will be made to draw definite conclusions from such a small series of cases.

The Use of the Cystoscope in Determining What Operation is Advisable in Prostatic Hypertrophy.

BY F. C. BALCH, M.D., BOSTON.

Few people would care to decide what operation was advisable in prostatic hypertrophy from a cystoscopic examination alone, but in connection with the other methods of examination commonly used it often gives us very valuable information as to how we should proceed with the case. Usually the examination is easily made without the use of a general anesthetic, as the use of cocaine takes away nearly all the pain. The urethra must be large enough to admit the instrument and the bladder must be capable of holding about five ounces of fluid without trying to expel it. The absence of these two conditions may make general anesthesia necessary as may also extreme sensitiveness of the prostate, as for instance where there is much ulceration. The view of the prostate may save us in some cases from serious mistakes. Thus in a recent case where the Bottini operation had been advised the cystoscope showed the growth in the prostate to be cancerous and a suprapubic operation was advised instead. Until comparatively recently the use of the cystoscope has been a difficult proceeding requiring very careful manipulation and often failing to demonstrate conditions which operation later proved had existed. Improvement in the older instruments and the

invention of new ones has greatly simplified the process and made it certain that in almost all cases we can see conditions as they actually exist. For the examination of the prostate the Kollman is a very satisfactory instrument. It gives a large, clear field and has the great advantage that even in a very dirty bladder or one in which there is considerable hemorrhage the fluid can be removed and returned again so quickly that we are sure of a transparent medium. All this can be accomplished without removing the tube from the bladder. As the insertion of a catheter or an instrument is often a cause of hemorrhage in these cases it will be readily appreciated that it is an advantage to be able to do all our washing without further irritation to the urethra than is involved in the primary insertion. It has the disadvantage that in certain forms of prostate it is not possible to see the whole of the mass, but it is perfectly practical to see enough of the tumor to decide what operation is advisable. It is not a catheterizing instrument, but catheterization is very rarely necessary and is usually not advisable in old men with hypertrophied prostate. The question of whether blood or pus is coming from either kidney can usually be determined by the examination of the fluid as it comes from the ureter. In many cases of enlarged prostate the distortion of the bladder is such that a ureteral catheter cannot be inserted.

After our examination there are many factors which must influence us in our choice of operations, such as the patient's condition, age, condition of kidneys, etc., but as far as the cystoscopy goes one can say that in that form of enlargement when there is a thickened ring about the internal meatus or a thick posterior lip the case is a very favorable one for the Bottini operation. Where the obstruction is from a ball valve it is very questionable whether the Bottini operation would succeed whereas the suprapubic route affords easy access to the growth. In the case of the pedunculated tumor it is very doubtful whether the cautery blade would hit it at all as there is no form of cauterizing instrument wherewith we can see just what we are burning. Again there is the chance that the pedicle might be cut through and the tumor left in the bladder. Where the obstruction is on one side only we can easily see where the cut should be made. If we find on examination that the growth is not so much intravesical as back toward the rectum, one of the operations for enucleation would be the operation of choice, other things being equal.

In a word the value of the cystoscope as an aid in operation is more apparent when the galvano-cautery is to be used than when the more radical operation of enucleation of the prostate is intended. It is, of course, a great help in all cases to know just what the condition of the bladder is and whether we have to deal only with an enlarged prostatic gland or some complication in combination with it, such as a stone or some tumor of the bladder wall.

A BRIEF RESUME OF THE PRESENT STATUS OF THE TREATMENT OF THE ENLARGED PROSTATE.

BY ARTHUR TRACY CABOT, A.M., M.D.,
Surgeon to the Massachusetts General Hospital.

IT would be hard to name any other surgical problem which has led to such differences of opinion or has been approached by such diverse attempts at solution as the management of the enlarged prostate. A simple enumeration of these will give a good bird's eye view of the subject.

CATHETERIZATION — OCCASIONAL AND HABITUAL.

False Routes { *a.* Suprapubic (Hunter McGuire)
b. Perineal

Prostatomy — Incision of Obstruction { *a.* Perineal
b. Per urethram (Bottini)

Prostatectomy { Partial { Suprapubic / Perineal
Complete { Suprapubic / Perineal

Orchidectomy — Vasectomy
Ligature of Iliac Artery

While experience has led to the rejection of a number of these methods, those now most in vogue are of such comparatively recent adoption that it would be presuming to suppose that we have yet reached the final solution of the problem.

The very great recent advances in methods of exact diagnosis and in operative technique have, however, put the subject on a much sounder footing than ever before. We begin to feel firm ground under us, and we can stand erect and look about us to see where we have reached and whither next.

The two things that the prostatic patient wishes to know when comparing a future catheter life with the chances of a prostatectomy are, the risk of the operation, and the probability of an effective and lasting removal of obstruction. The cases are still too few, and the time elapsed in many of them too short, to give us all the data we could wish for the answer of these questions.

The statistics collected for this meeting, as well as the results presented in the accumulating literature of the subject, seem to show that the complete removal of the prostate may be expected, in the majority of cases, to restore the power of voluntary urination. Perineal prostatectomy may now be done with so little disturbance of the prostatic urethra and of the voluntary sphincter of the bladder that we may expect in all but the most exceptional cases to avoid the distressing incontinence which followed many of the earlier enucleations of the prostate, both intravesical and perineal. By the use of Young's tractor, the prostate is brought down so close to the surface of the perineum that the incision of the capsule and the enucleation of the gland are carried on under the operator's eye. By this improvement in technique, the danger of the operation has been greatly diminished, and many patients who would formerly have shrunk from subjecting themselves to the risks and uncertainties of a suprapubic prostatectomy and

would have clung to the troublesome and annoying catheter, now can hear a frank statement of the mortality rates of perineal prostatectomy and cheerfully prefer that risk to the tyranny of the catheter with its more remote, but still very real, dangers.

I have been asked to say a few words this evening upon the treatment of prostatics with the catheter. There is not time nor is there need to rehearse here the details of catheterization, often so difficult in these patients. It is equally unnecessary to dilate upon the care with which one of these patients should be introduced to the catheter life.

I shall, perhaps, best employ the few minutes at my command by a consideration of the conditions under which at the present time, a resort to the catheter may seem preferable to an operation for the removal of obstruction. It happens not infrequently, that the disease runs an insidious course and is first discovered when the kidneys, and perhaps the heart and vessels too, are already seriously affected. Under these conditions, the dangers of an operation are enhanced, and if the patient is made reasonably comfortable with the catheter, it may be better to temporize in this way for the short time remaining to him of life. Even in these cases, however, it is often possible to do a Bottini operation under cocaine anesthesia and thus restore a reasonable power of urination with a minimum of operative risk. When these advanced prostatics have already reached a degree of renal insufficiency so great as to have led to a decided state of uremia, evidenced by nausea, vomiting, somnolence or great restlessness, they are not in a condition to bear operative interference. Such patients may be greatly benefited by the judicious use of the catheter.

In a recent paper, I have shown that by constant drainage through an in-lying catheter, the function of kidneys already seriously disabled may be restored, and patients in a pronounced uremic condition may be brought back to a state of health in which they can safely undergo operations which would have been almost certainly fatal if done during the existence of uremia. In very fat men with large prostates, the depth of the perineum and of the suprapubic approach add greatly to the difficulties of the operation; and as such patients do not bear operations well, it may be the part of good judgment to introduce them to the catheter life, rather than to subject them to the unusual operative risk that their condition entails. It is hard to decide upon the best course for such cases, and the results are so often unsatisfactory that, whichever method of treatment we choose, we are likely to regret that we did not select some other. Lastly, there will be a certain number of patients with hemorrhagic diathesis, with diabetes, or with some other complicating disease that prohibits any operation that can possibly be avoided, and in which we shall fall back upon the catheter as a "*pis aller*."

The catheter will also continue to play an important rôle in the immediate relief of cases of sudden complete obstruction. To the majority of other prostatic patients we may properly, I think, recommend a consideration of operative treatment. We can tell them that in proper hands they may undergo a prostatectomy with a mortality risk of between five and ten per cent., and that the chances are about nine to one that this operation will bring relief of their condition. We must also not forget to state to them that the risks of a catheter life, while more remote, are very real, for the chances of pyelitis, of epididymitis and of prostatic abscess are not inconsiderable. There will doubtless be many patients who will still shrink from operation and prefer the uncertain perils of the catheter life. It is my feeling, however, that as we become more and more able to give confident assurance of good functional results after operation, the community will gradually be educated to regard a prostatectomy with a degree of favor approaching that which they now show for appendectomy. We shall then get our cases earlier, before the kidneys have begun to suffer, and old age will be robbed of one of its serious terrors.

If the above considerations have led us to select an operation for one of our patients, the next step is to determine what that operation shall be. As I have indicated in my earlier remarks, in some patients too feeble, and with organs too unsound to bear a dangerous operation, a Bottini done with cocaine anesthesia, may be possible. The functional results of this operation are much less certain than after the more extensive prostatectomies, and the operation will, therefore, be kept for occasional use, rather than as an operation of choice in any but very rare cases. When a prostatectomy is decided upon, we have the choice between a partial prostatectomy done through the bladder and a complete prostatectomy done either suprapubically or through the perineum. When a complete prostatectomy is planned, my own personal preference is very strongly for the perineal route.

It has been my experience to find the perineal operation more exact in what it accomplishes, and, therefore, less dangerous and more sure of procuring a good functional result. When the prostatic urethra is torn in the operation, it is usually in its outer part and along its floor. The roof of the urethra is preserved and keeps the membranous portion of the canal in proper relation with the deeper portion of the prostatic urethra. I have found that a few stitches of cat-gut attaching the membranous urethra to the deeper parts are often useful in greatly diminishing the rent which has to be closed by granulation. The fact that the whole prostatic urethra can be removed, and that a good functional result is often thus obtained does not absolve us from the attempt to preserve the canal as far as possible. As a matter of fact, a certain proportion of the cases in which the gland is somewhat blindly shelled out have lacerations of the urethra which leave flaps that act as valves, hindering or preventing micturition. The gradu-

ally accumulating evidence as to the completeness and permanency of the functional result is so favorable to the complete prostatectomy, that this is properly selected as the operation of choice in all suitable cases. It is well, however, not to forget that a thorough removal of the third lobe will in many cases accomplish as good a restoration of function as the complete removal of the gland. I have seen this demonstrated in cases that I have watched for years. The operation leaves a cleanly cut surface at the internal urethral orifice, which is not favorable to the infiltration of urine; forms no pocket in which urine collects and stagnates, and, in short, leaves a wound which heals rapidly. This operation, therefore, is by no means one which should be neglected, and will be often found wholly efficacious. The cases in which it will have its most rational use are those in which the bladder is opened for other cause, such as the removal of a sacculated stone, and this condition of the prostate found. The removal of the third lobe under such circumstances adds little or nothing to the danger of the operation, and offers a very fair chance of restoring the power of urination.

PROSTATECTOMY. — SPINAL ANESTHESIA.[1]

BY F. B. LUND, M.D., BOSTON.

JOHN E. JONES, sixty-two years old; married; carpenter by occupation, was seen at the Out-Patient Department of the Boston City Hospital, by Dr. F. C. Cotton, the latter part of December, 1903. His previous history was unimportant, until five years ago, when he began to have difficulty in passing his water, and scalding, and frequency of micturition. He had sounds passed five or six times, with no relief of symptoms, and after that gave up treatment. During the intervening years his scalding had grown worse and his stream had diminished in size, so that it now dribbled rather than ran. The frequency had increased greatly, so that he had to get up fifteen or twenty times a night, passing only a teaspoonful at a time. He had had one or two attacks of retention and had been catheterized, when he presented himself at the Out-Patient.

Dr. Cotton found the bladder much distended, containing about two quarts of septic urine. He was catheterized, and his bladder was washed, but the cystitis did not improve.

On Jan. 2, 1904, he was admitted to the service of Dr. H. L. Burrell, who kindly placed him in my care. Examination showed that he had arterio-sclerosis of the radials, and a systolic heart murmur, heard best in the sixth space below the apex. He had a tracheitis and his voice was quite hoarse. He had a slight cyanosis of the lips, and conjunctivæ. He was seen in consultation by Dr. John L. Ames, who thought the heart murmur was due to an old organic lesion, and on examining the lungs found nothing abnormal. He suggested that, on account of the possibility of a latent process in the lungs, it might be wiser to wait a while before subjecting him to anesthesia. It was brought out that on account of his heart murmur he had once been refused by a life insurance company, but was subsequently accepted by another company.

[1] Patient shown at the meeting of the Surgical Section of the Suffolk District Medical Society March 2, 1904.

Examination of the urine showed specific gravity, 1020 acid, a trace of albumen, considerable pus, and squamous epithelium. Rectal examination showed a moderate uniform enlargement of both right and left lobes of the prostate.

He was put on daily bladder irrigations, and the condition of the urine improved somewhat. The catheter, however, was introduced with difficulty, and the bladder did not drain satisfactorily. Therefore, on the 8th of January a suprapubic cystotomy under local anesthesia was done. The incision was made down on the bladder without much difficulty, but on catching up the bladder walls, and attempting to examine the bladder with the finger, so much pain was caused that there was involuntary muscular contraction. An examination of the interior of the bladder could not be made. As, however, further operative procedures were contemplated, no prolonged attempt was made to make such an examination.

A drainage tube was placed in the suprapubic wound, and under treatment by bladder irrigations his general condition improved considerably, but the tracheal irritation continued. He did not seem a good subject for general anesthesia. Therefore, on Jan. 20, a partial prostatectomy was done under spinal anesthesia, as follows:

At 11.15 A.M., a hollow needle, five inches long, of No. 19 steel tubing, was introduced between the third and fourth lumbar vertebræ into the spinal canal, the patient lying on his side on the table, with the spine flexed. Clear cerebral spinal fluid began to flow at once, and a sterilized glass syringe, containing three-tenths of a grain of powdered cocaine, was attached to the needle. On withdrawing the piston, about two drams of spinal fluid entered the syringe, dissolving the cocaine, and was at once injected into the spinal canal. After covering the puncture with collodion dressing, the patient was placed in a lithotomy position, and the perineum was prepared as usual in preparation for a perineal section, perineal prostatectomy, according to Young's method, being the operation which was proposed. At the end of five minutes after the injection it was noticed that the pouring of ether on the perineum and rectum caused no pain, although the patient felt the shaving and knew what was being done to him, the process was not painful.

At the end of seven minutes a perineal section was made, and the dissection carried on according to Young's method, until the uretha had been opened and Young's tractor introduced. It was then found that the tractor did not bring the prostate well down into the field, which may possibly have been due to certain anatomical peculiarities of the case, or because the muscles were not relaxed by anesthesia. Determining to aid the use of the tractor by pressure from above, a sound was introduced, and on the point of this sound the suprapubic wound, which had almost closed, was reopened. Then, with the finger in the bladder, examination showed that there was a very large pedunculated middle lobe, which fell forward, so as to occlude the vesical opening of the urethra, and it became evident that this lobe was the chief if not the entire cause of the obstruction. As this could be very well reached from above, it was determined to remove this lobe through the suprapubic opening, which was done by incising the mucous membrane over it, and enucleating it with the forefinger passed through the suprapubic incision, the operator being aided by a pressure of two fingers of the other hand, which was gloved, introduced into the rectum, and lifting up the prostate. The enucleation was a difficult one, as the lobe seemed very firmly attached. After considerable effort it was accomplished, however.

During this procedure the patient suffered some pain, but it was not nearly as marked as what he had gone through during the suprapubic cystotomy under cocaine. The whole operation lasted forty minutes. The patient did not struggle, or make more than slight complaint. He aided the operator by changing his position when requested and during the whole proceeding a constant conversation was kept up between the operator and the patient.

As soon as the lobe was removed the patient asked to see the specimen. He was in excellent condition. Had hardly any rise of pulse, and absolutely no shock. After washing out the bladder, a tube was tied in through the perineal wound, and a strip of gauze passed in the suprapubic wound to the base of the bladder. It was not thought advisable to remove the lateral lobes, as the passage of the finger into the urethra through the suprapubic opening showed that the prostatic urethra was apparently not compressed by the lateral lobes. The patient's pulse was somewhat rapid the night after the operation, and he was somewhat flushed, but his general condition was excellent, and at no time did he show symptoms of shock. The gauze was removed from the bladder the afternoon of the operation, and the bladder washed out three, four or five times daily.

On the second day after the operation the patient sat up in a chair for an hour, and after that he was up out of bed for more or less of the time every day. The tube was removed from the perineum on the fourth day. The urine came through the suprapubic opening until the 7th of February, when he began to pass a little through the penis. He has to pass his water only two or three times during the night, and passes twelve ounces to a pint at a time. He says he is feeling better than he has for twenty years, and is able to pass a good forcible stream. On Feb. 29, he returned to the Out-Patient, and is very comfortable and satisfied so far as the results of the operation are concerned. He now has about an ounce of residual urine.

The method of spinal anesthesia adopted in this case is that recommended by Morton, of San Francisco, and has the advantage of not increasing the amount of fluid in the spinal canal. The cerebral spinal fluid is sucked into the syringe, dissolves the powdered cocaine, and is immediately replaced in the canal. Morton, in a paper read before the American Medical Association, states that he has used the method 673 times without a failure of analgesia, and 60 of these operations were above the diaphragm. He states that, during the past year it has been tried by most of the surgeons in the country for operations below the diaphragm, and by many of them given up on account of objections of various kinds. It has been used in a few thousand cases, but not enough to establish its safety as compared with general anesthesia. Its analgesic properties cannot be doubted for operations on the lower extremities.

Of the 673 cases which Dr. Morton stated he has treated, there was only one fatality which could in any way be attributed to the use of the anesthesia, and that, he thinks, can hardly be attributed to it, from the condition of the patient and the post mortem findings.

The case was that of a strangulated umbilical hernia. The woman weighed three hundred pounds, had a very weak heart, was semi-comatose at the time of the operation, having been unable to take a reclining position for several days. The patient died during the operation, after the removal of fourteen pounds of pendulous omentum, and at the time the intestine was reduced. It would seem that this death would have occurred in any other method of anesthesia.

Among the operations for which Morton has used this method of anesthesia are amputations of the breast, empyema, enucleation of the eye, mastoid operations, abscess of the antrum, etc.

It seems to me that with such a record as this the method will prove of value in cases where a general anesthetic is contra-indicated on account of diseases of the lungs or kidneys. It ought to be of value in operations on the larynx or about the mouth, where there is danger of blood entering the air passages. Morton states that the great advantage to be gained in operations about the buccal cavity can hardly be appreciated until tried.

For some years the writer has been in the habit of operating upon strangulated herniæ, in which constant vomiting is present, under local anesthesia by infiltration with cocaine solutions. This method, while far preferable to a general anesthetic, has been rather tedious to the operator, and in certain cases, painful to the patient.

The experience with this case of prostatectomy was so successful as to lead to the belief that these injections will prove a much more satisfactory method than local infiltration anesthesia for this class of operations, and it is the writer's intention to give it a trial in the future. It was certainly surprising in this case to be able to carry out the more or less forcible manipulations attendant upon enucleation of the prostate through a suprapubic incision upon a conscious patient, who is able, to a certain extent, to aid the operator, to change his position when required, and whose first inquiry when the prostate was removed was to be allowed to see what had been taken from him. The entire absence of vomiting and the consciousness of the patient made the immediate after-care of the patient extremely easy. There was even no nausea. The patient's condition for the first two days was better than the writer has noted in a case of prostatectomy.

In regard to the bearing of this case upon the question of prostatectomy aside from the anesthesia, it certainly shows a favorable result, temporarily at least, by the removal of the obstructing middle lobe, and that for relief of the symptoms it is not always necessary to remove the lateral lobes. The writer further believes that it is better in the majority of cases to remove the entire prostate. Whatever method is employed, pains should be taken to damage the urethra and vesical mucous membrane as little as possible. If this point is attended to, free drainage provided, and frequent and copious irrigation practiced in the after-treatment, the writer believes that prostatectomy will give satisfactory results and a low mortality.

Reports of Societies.

SUFFOLK DISTRICT SOCIETY.

SECTION FOR SURGERY.

DISCUSSION.

A MEETING of this section was held on March 2, DR. F. B. HARRINGTON in the chair; on the subject of

THE TREATMENT OF PROSTATIC HYPERTROPHY.

DR. B. TENNEY: Two years and a half ago, a man of forty-six came to me with a story of inability to pass urine for six weeks, and some slowness of urination preceding this. He was able to pass a good-sized soft rubber catheter without difficulty, but was beginning to feel some irritation as a result of its use. Rectal examination showed a prostate very little above normal size and of uniform shape. With a cystoscope a small median projection could be seen which acted like a ball valve. Two or three years before this, I had been practicing ureteral catheterization on the male subjects in the dissecting room of the Harvard Medical School, and had been using an open tube of my own devising. Through this tube I found on one subject a projection almost exactly like the one which the patient presented.

It occurred to me that I could destroy this projection, using a long cautery point through an open tube, and I had one made up for me by Codman & Shurtleff which I have here. It is a tube 28 French and seven inches long, with a curve and conical end to facilitate introduction. The convex side of the curve has been cut away so as to leave an elliptical window which is apparently circular when seen from the expanded end, and an obturator has been fitted to close this opening.

The patient came to my office, had his urethra and bladder cocainized and took the knee-chest position on my examining table. The introduction of the tube was easy and the small tumor came into plain view with the help of a head mirror. With a rather heavy cautery point bent to a right angle with the shaft I made three furrows about one-fourth inch deep in the lobe. There was no bleeding, less complaint of pain than one often hears when dilating a stricture, and the patient rode some four miles to his home in a street car. Three hours after the cauterization, he passed his urine without the assistance of a catheter. Six months ago I examined him and found no symptoms of any trouble, no night urination, and less than a drachm of residual urine.

This procedure has, of course, a very limited application, but it worked so happily in this case that I thought the Section might be interested to see the instruments with which it was accomplished.

DR. PAUL THORNDIKE: I came here this evening hoping to hear two points in the treatment of prostatic hypertrophy discussed. First, the role of the catheter in such cases and, second, the range of usefulness of the Bottini operation.

(1) The rôle of the catheter. Dr. Cabot has summed up this question in a few words, and though his summary is not one which I should have made, it is certainly more nearly like my own than I should have been willing to admit a few months ago. He gives the catheter a place in the therapeutics of this affection only in those somewhat exceptional cases when, for some reason or another, no operation either radical or palliative is proper. I have always believed, and I am not yet quite prepared to change my views, that all prostatics should be made comfortable with a catheter if such palliation is, and so long as it is, possible and efficient; and that then, at the moment when the use of a catheter becomes an abuse, operation of some sort is indicated. I am quite aware that such a catheter life results in an infection of the bladder with all its possible consequences in many or most of the cases within a comparatively short time, but I also know that such infections do not by any means always persist, that they do clear up often, and that such catheter patients become acclimatized to the use of the instrument, and are progressively less liable to subsequent infections as the months and years go by. Therefore, while recognizing the dangers of a catheter life, and while realizing that our knowledge of both radical and palliative operations has enormously decreased their dangers and has increased their efficiency in the last two or three years, I am still inclined to give the catheter a larger place in prostatic therapeutics than Dr. Cabot has assigned to it to-night; and I say this with a full recognition that the accumulating experience with operations, both radical and palliative, may in the next few years change all this and may gradually push the routine use of the catheter out of the category of prostatic therapeutics.

(2) The range of usefulness of the Bottini operation. For a number of years I have believed and have frequently stated that prostatectomy, aiming at a radical removal of the obstructing masses, is always the operation of choice in prostatic cases. That is to say, I believe that when once an operation has been decided upon the procedure selected should be a prostatectomy in all possible cases; and that partial removals or palliative procedures like the Bottini operation should be held in reserve for such cases as are unfit for the more severe and more complete operation. I have, however, up to the present time, believed that in the large variety of cases presenting themselves for relief, the greater number were unfit subjects for a complete prostatectomy and that most of this unfit class were best treated with a Bottini operation. I do still believe that a very large range of prostatic cases are more fit for a Bottini operation with all its uncertainties than for the more severe procedure. The operative experience of the last two or three years has made such enormous changes for the better in both the technique and efficiency of prostatectomy and has rendered the complete removal of the gland so much safer than it was a short time ago that the field for the Bottini operation is steadily growing smaller; and now that spinal anesthesia has been shown possible and efficient for prostatic work, so that the dangers of the general anesthetic may be eliminated from our prostatectomy mortality statistics, it seems certain that the range of usefulness of this procedure will steadily increase and that the complete operation is gradually pushing the less radical procedures to the wall just as it is the routine use of the palliative catheter.

I was much impressed a short time ago, in talking with two surgeons of large experience with the Bottini operation, to have them both tell me that they were doing more and more prostatectomies and fewer and fewer Bottini operations, and that spinal anesthesia was largely instrumental in making this change in their choice of operation. So that while I believe that a Bottini operation with a proper preliminary cystoscopy is safe enough and accurate enough to continue to hold a large place in our scheme of prostatic operating, I also believe that the improvement in our knowledge of and technical skill with prostatectomy is diminishing its dangers and is increasing its efficiency so rapidly as to render this operation more than ever our first choice in all possible cases.

DR. G. S. WHITESIDE: I recently saw a man, whose

case was one of those mentioned in Dr. Hugh Cabot's table, as being in a worse condition now than before prostatectomy was done. He was operated on at the Massachusetts General Hospital, three or four years ago, the entire prostate being removed by the combined suprapubic and perineal methods. He has no residual urine because he has very little control over the sphincter muscle; the bladder now remains empty all the time. He wears a rubber urinal. He tells me that when he is in the recumbent position, he does not so often pass his urine involuntarily but that, nevertheless, this accident is liable to occur at least once in the course of the night. Otherwise his health is good. Cystoscopy shows the reason for the incontinence. The entire prostatic and membranous portions of the urethra have been converted into a cicatricial tube, preventing the compressor urethræ from acting as it should do. I have also seen several other cases which have been operated on by various surgeons, in none of which has the operation been a complete success. Some have cystitis, in spite of the fact that no residual urine can be demonstrated. I presume the successful cases operated by other surgeons would go back to those who successfully operated upon them rather than come to me.

We are undoubtedly educating the public and ourselves to earlier and more radical operations for enlargement of the prostate, as Dr. Harrington has just said. There is, however, a class of cases which I have frequently seen, but about which I should like some advice from those more experienced than I. Given a man, about forty-five to fifty-five years old, in good general health, with sound heart, sound kidneys and apparently normal arteries, whose urine contains neither albumen nor casts, is acid and free from pus. This man can entirely empty his bladder at all times. He complains of slight nocturnal frequency, occasional burning sensations deep in the perineal region, and a feeling of uneasiness after micturition. On examination, such a man will show an enlarged, soft, boggy prostate as felt by rectum. It encroaches somewhat upon the lumen of the bladder and the mucous membrane over it is somewhat thickened and contains many abnormal blood vessels. All of these facts are plainly seen on cystoscopic examination. There is, however, no obstruction to the outflow of urine. Several such cases have come to my notice during the past five years and in three, at least, I have had the opportunity to examine them with the cystoscope once a year, and to note a gradual but surely progressive increase in the size of that portion of the prostate which projects into the bladder. What are we to do for these cases? Are we to employ palliative measures which give relief but no promise of cure, or are we to do an early prostatectomy in view of the fact that they will probably need to have it done later when their general condition may not be as good? They do not want to be operated upon; they do not feel sick; their difficulties are annoying but slight. Shall we wait for the signs and symptoms of obstruction before advising surgical interference?

DR. J. G. MUMFORD: The following case of a death following prostatectomy is instructive and worth reporting:

Mr. A. F. C., age sixty-three, consulted me in September, 1902, regarding frequency of micturition. He was a large, heavy, phlegmatic man of previous good health and moderately addicted to alcohol. He gave no venereal history. He had no distressing symptoms, but was annoyed by having to pass urine every two hours at night, and every three hours in the daytime. He had a residual of seven ounces. At that time urine was normal in color, acid, specific gravity 1017 with the slightest possible trace of albumen, and no sugar. The sediment, amorphous phosphates, an occasional bladder and epithelial cell, an occasional leucocyte, an occasional small round cell; rare abnormal blood corpuscles and rare calcic oxalate crystals. The prostate presented large, firm, lateral lobes, each apparently the size of a pigeon's egg. The situation was explained to the patient and the advisability of prostatectomy was urged. He preferred, however, to lead a catheter life, which he did for a year.

Until July, 1903, he was very comfortable, passing his catheter twice daily and having his bladder irrigated occasionally. Under this treatment the urine cleared up, and on July 21 showed nothing whatever abnormal. A week after this date, however, the patient developed complete retention, but was able to keep comfortable by catheterizing himself every six hours.

In August he consulted me again and stated that he had decided to have an operation done, electing a well-known Boston surgeon and friend of my own, in whom I have great confidence, to do the work for him. I was myself present at all consultations and at the operation, and approved of all the subsequent proceedings which were carried out in a most workmanlike manner. The surgeon decided, as is his custom, to divide the operation into two sittings, securing drainage by a simple suprapubic cystotomy at first; ten days later removing the prostatic lobes by the combined method.

On Aug. 17, the supra-pubic drainage was established. At this time exploration with the finger in the bladder discovered two large lateral lobes, the left being the more prominent internally. Its consistency suggested malignancy, but it was well encapsulated and there was no sign of metastasis. The patient rallied well from the operation and ten days later was in excellent condition, with a normal urine passed by urethra and a fairly sound heart action.

On the 27th of August he was again etherized and a secondary operation undertaken. On removing the drainage and making bimanual examination, it was found that the two enlarged lobes had very greatly diminished in size during the preceding ten days, so that they felt but slightly larger than normal. My notes state that the right lobe was not abnormal, the left lobe appeared to be a punky mass of connective tissue about the size of a walnut. This collapsed on being opened through the perineum; drainage was established and the patient did well for two or three days, when his kidneys began to show involvement and gradually became severely affected. Nine days after the operation he died with suppression.

It might be asked why the secondary operation was done when the first operation had so greatly relieved symptoms as to enable the patient to pass urine freely by urethra. It was the opinion of my consultant and myself that the second operation should not have been done; but as the patient greatly feared cancer of the prostate, and as we could not deny its possibility, he insisted upon the removal of the small remaining nodule, and we felt ourselves forced to yield to importunities which were really commands, although contrary to our better judgment.

The striking lesson in this case is that in certain forms of enlarged prostate due to a chronic inflammatory process, simple drainage may suffice completely to relieve symptoms.

The presumption is that our patient was one of a numerous class in which a long antecedent gonorrhea was the cause of the difficulty.

Recent Literature.

Gynecological Nursing. By NETTA STEWART, Sister in the Extra-Mural Gynecological Wards of the Royal Infirmary, Edinburgh. With a preface by SIR HALLIDAY CROOM, M.D., etc. pp. 174. New York: William Wood & Co. 1903.

This little book represents in an authoritative way gynecological nursing as practiced in the Royal Infirmary, Edinburgh. In the preface the author acknowledges her indebtedness to such well-known gynecologists as Dr. Barbour, for help and instruction, and Dr. Berry Hart, for reading the proofs.

The book is clearly and concisely written, the arrangement of the subjects is logical and there are several especially good chapters, notably those on the use of the catheter, on the use of the cantharides blister and on gonorrhea. From the standpoint of the English gynecologist there is little to criticize in this work; to the American such terms as bidet, jaconet, Higginson's syringe and swabs sound unusual, but they are for the most part explained by the illustrations.

As representing a system of gynecology there is much to criticize from an American view point. The author congratulates herself that the era of passing the catheter by touch rather than by sight has passed away; she does not seem to realize that the era of false modesty and unnecessarily painful manipulations still exists in Edinburgh. On page 2 it is stated that, "no young girl or unmarried woman is examined by inspection of the external genitals or by the vaginal method, unless under an anesthetic," and on page 66, speaking of a cystoscopic examination, "this examination being of such a nature that exposure is unavoidable, the patient is anesthetized."

The nurse is instructed to tampon the vagina and to remove uterine and vaginal gauze packing without the use of instruments, a procedure unnecessarily painful for the patient and difficult of performance even in the hands of the skilled gynecologist. In discussing the preparation of a patient for a bimanual vaginal examination no mention is made of the necessity for loosening every band about the waist, without which no proper diagnosis can be made. The rubber glove does not appear in the book, and, although the aseptic technique is, in the main, excellent, it is difficult to see why in preparing for plastic operations the advice is given to boil the instruments half an hour, while in preparing for an abdominal operation they are to be boiled an hour. In the after-care of a case of perineorrhaphy the nurse is told to give a warm antiseptic vaginal douche twice daily, and after each douche she should carefully dry the vaginal walls with "the index finger of the right hand, round which a thin layer of sublimated wool has been wound," a proceeding not only excessively painful for the patient but meddlesome to a degree, as tending to separate and infect the lips of the wound.

Another source of discomfort, the old plan of keeping the bowels constipated for a week after this operation, apparently still obtains in Edinburgh.

The portion of the book on nursing in abdominal surgery is more modern in tone and is, on the whole, good, although here also the Spartan methods of preparatory and after-care, common in this country fifteen years ago, still hold sway in modified form. The book presents a handsome appearance, being printed in large type on heavy, glazed paper and bound in green cloth.

The Treatment of Fractures, with Notes upon a Few Common Dislocations. By CHARLES LOCKE SCUDDER, M.D., Surgeon to the Massachusetts General Hospital. Fourth edition. Thoroughly revised. Philadelphia, New York and London: W. B. Saunders & Co. 1903.

This is the fourth edition of this work since 1900, a period less than four years. Again one is called to comment on the energy and activity of its author in this special line of surgery and the popularity of his book. As formerly, it is still intended to serve as a guide to the practitioner and student in the treatment of fractures of bones. As before, its striking features consist in the graphic, precise manner in which the actual condition of fractured bones are presented by anatomical description, clinical symptoms, reproductions of photographs and skiagraphs; also in the details of treatment and especially of apparatus. The chapters on the application of the Röntgen ray to fractures, the employment of plaster of Paris, and the ambulatory treatment of fractures still attract attention. In this edition (still an octavo) the number of pages has been increased from 488 to 534, and the illustrations from 645 to 685. Many "half-tones" are introduced, increasing the effectiveness of illustration. Additions have been made to the text in various places. Radiographs of the epiphyses at different ages will greatly facilitate the study of these lesions.

A chapter on the common dislocations is a new feature of the work. Also many of the former tracings of x-ray prints of fractures are replaced by half-tones of the actual negatives.

The book may well be said to represent the best modern treatment of fractures.

Plain Hints for Busy Mothers. By MARIANNA WHEELER, Superintendent of the Babies' Hospital, New York, since 1891, and author of "The Baby." 54 pp. New York: E. B. Treat & Co.

The publishers in their announcement state that this little handbook is intended as an aid to mothers whose means are limited and who must care for their own babies, at the same time attending to their housework. Looked at even from this point of view, this book is not at all satisfactory. Viewed from a medical standpoint, it is not worthy a serious consideration. The directions as to feeding are in many respects bad. The English is execrable.

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INTERCHANGE OF MEDICAL TEACHERS.

WE have from time to time commented on the increasingly intimate relations which are coming to exist between men of science in this and in foreign countries. The custom of inviting distinguished foreigners to deliver lectures in this country has steadily increased during the past few years. Professor Ehrlich, for example, has recently concluded such a course of lectures at the Johns Hopkins Hospital, and Professor Sherrington is about to begin an elaborate course under the auspices of the Silliman foundation at Yale University. Last year, it will be remembered, Professor Welch went to England for a like purpose, as well as Professors James, Royce and Wendell in recent years, and many other instances might be mentioned of the interchange of ideas brought about by such visits of men from other countries.

The relative ease of communication between this country and Europe, together with the increasingly greater uniformity of work being done in the two countries, has naturally brought about a closer relationship than has hitherto existed. It is unquestionably of great value to learn the differences in method, as well as the actual results of research, of those working in other countries but in allied fields. Not only is this stimulating to the investigators themselves, who find a willing audience for their results, but it is also of much significance in stimulating increased interest among men engaged in similar work.

The healthy rivalry, which the intimate personal acquaintance with each other's work produces, is certainly salutary. It would be well if in our large institutions of learning it were possible to so extend this plan that the student body, as well as those further advanced in their studies, might also have the benefit of foreign ideas. The suggestion has, in fact, been made by President Eliot of Harvard University that an actual interchange of professors might be arranged in various branches of research to the end that for a considerable period of time, extending over months or perhaps a year, students might be brought under the influence and direct teaching of foreigners. We are under the impression that at the present time in the academic department of Harvard University two such interchanges have been made, which permit the residence of foreign instructors at the university for an academic year, providing in exchange two men for the institutions from which they came.

It occurs to us, as at least a possible plan, that the same method might be adopted in medical institutions. Obviously, the difficulties would be great in providing for the long continued residence of a practicing physician in a foreign country, but in many of the theoretical branches of medicine it would certainly be possible for teachers in foreign universities to spend a year in this country, during which they would be expected to give to the widest possible audience the results of their methods of investigations. There can be no question, judging from the experience we have already had, that the occasional infusion of new ideas from foreign sources into the routine of the medical curriculum would be highly stimulating to students as well as to teachers, and that an enthusiasm might thereby be aroused for special branches of medical work which is now too often dormant. Whether or not so radical a departure might be made, we are convinced that the closer the interrelationship between universities in Europe and America the more comprehensive will be the products of their work.

We are not aware that Germany has ever extended a particularly friendly hand to American investigators in medical lines, but there can be no question that the time is not far distant when this barrier will be removed and the same hospitality extended to the work of our competent investigators as we have long extended to theirs. Recent events lead us to think that this time is near at hand.

INTERMEDIATE REPAIR OF THE INJURIES OF CHILDBIRTH.

A PROMINENT obstetrician and gynecologist, the author of one of our most popular text-books, recently wrote: "If every woman were given

the attention she ought to receive after childbirth, three fourths of the diseases of women would disappear."

The present practice of the profession is to repair injuries of the perineum immediately after labor, if the patient's condition permits; the patient being across the bed, often in a poor light and the assistance at hand meagre, injuries of the anterior vaginal wall and cervix are left to nature with the possibility of the subsequent development of cancer and other uterine diseases, or to a secondary operation months or years afterwards.

Dr. B. C. Hirst of Philadelphia and Dr. L. R. Dickinson of Brooklyn, two distinguished obstetricians, have adopted a different plan in their clinics with most successful results. They point out that immediately after delivery the birth canal having been subjected to great trauma, especially in difficult cases where the injuries are most extensive, the tissues are swollen and distorted so that it is impossible to recognize landmarks. An expert obstetrician and pathologist who made frozen sections of a woman dying five minutes after delivery was unable to make out the position of the os externum in the sections. It is likewise difficult to obtain a correct understanding of the condition of the anterior vaginal wall, injury to the muscles and fascia of which result later in cystocele.

Immediately after delivery the patient has been through a more or less severe strain and it is out of the question to subject her to a prolonged examination on a table in a proper light, and for the same reason, a properly performed operation with an anesthetic is inadvisable. Besides there is apt to be much bleeding and the tissues are so bruised that they do not well hold sutures.

On the other hand, months or years after labor chronic hyperplasia has thickened the lips of a torn cervix, partial cicatrization has taken place and cysts have formed in the unhealthy tissues; the vaginal walls have sagged, permitting displacement of bladder or rectum and there is present atrophy of the muscles from disuse. Small wonder that operations undertaken at this time are so frequently unsuccessful in restoring the parts to a normal condition.

From five to ten days after delivery hemorrhage has ceased, the vulva is still relaxed permitting easy access to the vagina and cervix and the patient has recovered from the shock attending labor. Now she can be placed on a table in a good light, she can be thoroughly examined and, if necessary, anesthetized and operated upon with suitable assistants and preparations just as in the usual secondary operations. The tissues are soft, the needle passes easily, and accurate opposition can be secured. Ten days after labor granulations appear and these must be removed with the curette. Previous to this time the torn surfaces need only to be freshened by wiping them with a piece of gauze held in a forceps in order to obtain primary union.

The practice of repairing all the injuries of childbirth during the puerperal convalescence it may be argued is impracticable because it is too much trouble, the remuneration would not be sufficient and it would not be tolerated by many patients. The same arguments could be urged against almost any advance in medicine, and, if valid, would stop all progress. The plan has been carried out with the most satisfactory results in Dr. Hirst's private practice and in the University Maternity in Philadelphia during the past year and in Dr. Dickinson's practice in Brooklyn for several years.

To the mind of the unprejudiced observer there is something illogical in neglecting two thirds of the injuries of childbirth and in repairing in a slipshod manner only the injuries of the perineum. It is within the realm of possibility that in the not distant future the parturient woman will demand that her accoucheur shall be equipped to diagnosticate and repair all the injuries which she may receive during labor and that these shall be attended to during the puerperal convalescence.

CESARIAN SECTION AT THE BOSTON LYING-IN HOSPITAL.

THE report of the Boston Lying-In Hospital for its seventy-first year contains an interesting statement in regard to Cesarian section at that institution. According to this report, the most notable event during the hospital year which has closed has been the successful performance, for the fiftieth time in the history of the hospital, of the Cesarian section. The first performance of this operation at the Boston Lying-In Hospital was on July 15, 1894, a little less than ten years ago. The operation had been performed but rarely in this country, and the successful result obtained in this case was regarded as an important achievement in obstetrical practice.

During the ten years the Cesarian section has been performed 55 times in the hospital, and notwithstanding the fact that in several of the

cases the operation was resorted to under adverse circumstances, the result has been fatal to the mother in only 5 cases, the remaining 50 patients having been discharged well from the hospital. By a coincidence, 50 children were born and discharged well, and there were 5 fatal cases of children, including one still-born. In but 2 of the whole 55 cases was the result fatal to both mother and child. In 5 cases the operation was performed upon the patient for the second time at the hospital and in one case for the third time.

The operation has been performed 10 times during the past year, and in all these cases the children were successfully delivered, and there was but one fatal result among the mothers.

The progress — if it be not more properly termed the revolution — which this hospital has thus prominently assisted in bringing about in the practice of obstetrics and in the saving of life in the time of maternity, instances the value of its work. The entire community has shared in the benefits of the experience and skill which have been acquired in the hospital.

Incidentally it may be remarked that the general work of the hospital during the past year has been larger than that of any preceding year. The total number of patients treated and attended was 2,519, being 90 in excess of the record of last year, the largest previous number.

The 654 patients treated in the hospital were afforded 10,618 days' treatment, and to the 1,865 patients attended in their homes 27,975 visits were made.

Financially, receipts and expenses have about balanced each other, but needed repairs and improvements are restricted and increased donations are earnestly desired.

A PROPOSED NEW BELLEVUE HOSPITAL.

The city recently made an appropriation of $75,000 for securing plans for a new Bellevue, as well as new Harlem and Fordham hospitals and the enlargement and improvement of Gouverneur Hospital, and on the occasion of a lecture delivered by Dr. Brannan in Havemeyer Hall, Columbia University, on April 22, the architects, Messrs. McKim, Mead and White, presented the drawings and plans proposed for these institutions. If these plans are approved, the city of New York will for the next ten years be building in instalments at Bellevue the greatest hospital in the world. The cost of the new Bellevue Hospital is placed at $11,000,000, not including an electric light plant estimated at $1,000,000, nor the expense of condemning the East River block between 28th and 29th Streets, just north of the present hospital site. That block, which will make the grounds cover three whole blocks in all, is now in process of condemnation. Neither does the $1,000,000 include the filling in of a large strip to be taken from the East River. The United States War Department, by special action, has consented to the extension of the bulkhead line so that it will include enough space to make a rectangle out of the three blocks. At present the Board of Estimate and Apportionment has been asked for $702,000 to erect the first pavilion, and it is expected that this sum will be appropriated before long. There are to be twelve pavilions in all, and in the center of the buildings will be a great dome, in which ample accommodations for the large house staff will be provided. Fresh air, plenty of it all the time, Dr. Brannan regards as the main thing in a modern hospital, and in no other institution, he says, has this idea been carried out as it will be in Bellevue. Special attention will be paid to the lighting and ventilation of the wards, and, in addition to a multitude of balconies, there will be enormous roof gardens, to which many elevators will run. At certain points on the roof will be glass-inclosed sections, and for bad weather these covered areas will be capable of extension.

MEDICAL NOTES.

A Departure in Advertising.—A tea planters' company of Paris is offering an insurance policy for one month against death by accident to prospective purchasers, of a quarter, a half and one pound of tea.

The American Confederation of Reciprocating Examining and Licensing Medical Boards. — A meeting of this association will be held at the Great Northern Hotel, Chicago, Tuesday, May 24. Hitherto eleven states have entered into the confederation, and it is hoped that a still wider interest will be taken in the meetings of the society.

Centenarians. — The following persons are reported to have lived beyond one hundred years: Mrs. Donald Macdonell of Glengarry, Ontario, has died at the reputed age of one hundred and six. Denneth McGillivray, also of Ontario, died at the age of one hundred and one years. Tom Fitzgerald, reputed the oldest man in Munster, Ireland, reached the age of one hundred and six.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, April 27, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 59, scarlatina 11, typhoid fever 6, measles 167, smallpox 0.

MODELS OF THE GROUP OF NEW BUILDINGS OF THE HARVARD MEDICAL SCHOOL. — A very excellent model of large size in plaster by John Evans of the group of new buildings of the Harvard Medical School has been forwarded to St. Louis for the Louisiana Purchase Exposition.

APPOINTMENT OF DR. JAMES B. SHEA. — The mayor has appointed Dr. James B. Shea as a member of the Boston Board of Health, in place of Edwin L. Pillsbury, whose term is expiring. Dr. Shea has been connected with the department since 1888, but this appointment comes as a promotion.

ADDITION TO THE LYNN HOSPITAL. — A new ward for the Lynn Hospital was opened last week. This new ward building consists of a main ward and fourteen private rooms, giving space for thirty-three beds. On the second floor is a small ward for children. A surgical dressing room is also provided.

CAMBRIDGE VISITING NURSES ASSOCIATION. — A visiting nurses association has been established at Cambridge, Mass., under the charge of Miss Read of the Waltham Training School. $5000 is required for the first year's work. At a recent public meeting of the association Dr. Henry P. Walcott spoke of its prospective work.

THE MASSACHUSETTS HUMANE SOCIETY A DISTRIBUTOR OF USEFUL INFORMATION.— The Massachusetts Humane Society has issued and has for distribution a booklet giving instructions how to save drowning persons, how to restore persons apparently dead from drowning, and what to do in other cases of emergency. There is always a growing demand for this sort of literature at this season of the year.

WORCESTER CITY HOSPITAL. — According to the recently published annual report of the trustees of the Worcester City Hospital, it appears that the number of patients admitted to the hospital was 2,955, which was 528 more than last year, a gain of 21%, as compared with 13% last year. The number of accident cases treated, but not admitted to beds, was 482, against 516 last year. The proportion of minor accident cases treated is annually becoming smaller, owing, probably, largely to the establishment of emergency hospitals by corporations and individuals.

NEW YORK.

HOSPITAL SATURDAY AND SUNDAY ASSOCIATION. — The distributing committee of the Hospital Saturday and Sunday Association met at the mayor's office on April 23 to distribute the undesignated fund of the collection for 1903 and '04. Owing partly to a stormy Hospital Sunday and partly, no doubt, to the times being less prosperous than last year, the general collection declined from $83,000 to $75,000, and the undesignated fund, from $68,000 to $64,000.

OFFICERS OF NEW YORK COUNTY BRANCH STATE MEDICAL ASSOCIATION. — At a meeting of the New York County branch of the State Medical Association held April 18 the following officers were elected: president, Dr. Francis J. Quinlan; first vice-president, Dr. H. A. Dodin; second vice-president, Dr. S. Busby Allen; recording secretary, Dr. W. R. Stone; corresponding secretary, Dr. J. J. Nutt; treasurer, Dr. Charles E. Denison. Dr. Alexander Lambert, the retiring president, was elected to the executive committee.

DEATH OF MRS. ELIZABETH MORTON. — Mrs. Elizabeth Morton, the widow of Dr. W. T. G. Morton of Boston, died on April 21 at the Hotel Martha Washington, New York, from pneumonia, following a long previous illness. She was born in Farmington, Conn., in 1826, and was married to Dr. Morton in 1844. No recognition of any sort from the American Government ever came to the widow, although the reports of six congressional committees during her husband's lifetime had recommended an appropriation of several hundred thousand dollars in acknowledgment of the benefit derived from ether anesthesia during the civil war. Two of the five children surviving Mrs. Morton are Dr. William James Morton of New York and Dr. Bowditch Morton, now practicing in Monterey, Cal.

QUARTERLY REPORT OF HEALTH DEPARTMENT. — The condensed quarterly report of the Bureau of Records of the Health Department for the last three months of 1903, just issued, shows that during the quarter the mortality in the city represented an annual death-rate of 17.45 as against 16.62 for the corresponding period. The corrected death-rate (excluding non-residents and infants under one week old) was 15.67, as against 15.74 in 1902. The estimated population was 3,732,703, and as the average number of deaths for the corresponding quarter of the

preceding five years, upon an estimated population of 3,448,567, gave a death-rate of 17.82 per 1,000, there was a decrease of one third of a point. The noteworthy increases found in comparing the deaths in this quarter with the preceding quinquennial average of the corresponding quarters were among the diseases affecting adults and old people, as follows: Apoplexy, 77; organic heart disease, 105; pneumonia, 426; Bright's disease and nephritis, 102; pulmonary tuberculosis, 96. There were 782 more deaths between the ages of five and sixty-five, and 270 more at sixty-five and over. Diphtheria and croup showed an increase of 50, and measles 12 above the quinquennial average. The decreases noted were in whooping-cough, 39; acute bronchitis, 99; malarial fever, 28; typhoid fever, 50; influenza, 40; and under five years of age, 127.

Illness among Physicians at Bellevue. — A number of the house staff of Bellevue Hospital have recently been suffering from illness as a result of the overwork and strain attendant on the crowded condition of the hospital, in addition to the totally inadequate accommodations for the physicians. Two of them are stated to have contracted tuberculosis, and Dr. Brannan, president of the board of trustees, is in receipt of a letter from Dr. Haven Emerson offering to furnish a list of at least 20 Bellevue internes who have developed that disease in the past. For the 43 physicians now living in the hospital there are only 16 rooms, and in some cases there are 4 and 5 in a room together. As to the crowding of the wards, the average number of patients applying in a day is 250, and of these the average number admitted is 125. In order to accommodate these at all, an average number of 125 must be discharged each day. The strain upon the physicians is unremitting. There is perhaps no hospital anywhere in which such a variety of acute cases, requiring constant attention, is treated, and every discharge must be signed by the attending and the house physician or the attending and house surgeon. On the grounds of the hospital there was erected during the past week a portable pavilion for the open air treatment of tuberculosis. It is 16 feet, 6 inches by 33 feet in its dimensions, and is designed to accommodate 12 patients. The roof is made of canvas, having adjustable ventilating traps, and over it there is a canvas fly, leaving a space of about 18 inches, by which arrangement a free circulation of air is readily secured. The building can be taken down and re-erected on another site in a short space of time.

RECORD OF MORTALITY

For the Week ending Saturday, April 16, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Measles.
New York	3,908,644	1,785	533	25.43	25.93	3.13	.28	1.90
Chicago	2,021,086	616	136	21.91	18.00	.97	.32	.16
Philadelphia	1,407,968	570	153	20.20	13.75	1.96	.56	.70
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	549,229	195	45	27.21	12.04	—	—	—
Cleveland	444,351	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	155	—	29.68	18.70	1.29	1.93	.64
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	85	19	20.00	14.11	1.41	—	—
Boston	617,950	204	58	22.05	22.54	1.96	2.45	1.96
Worcester	136,925	36	14	11.11	13.88	—	—	—
Fall River	119,349	51	19	15.69	27.45	1.96	—	—
Lowell	104,402	29	6	10.34	6.89	—	—	—
Cambridge	100,998	30	8	23.33	16.67	3.33	—	—
Lynn	73,875	13	2	—	—	—	—	—
Lawrence	72,348	24	8	20.83	37.49	—	4.16	—
Springfield	72,020	28	5	17.85	14.28	—	—	—
Somerville	70,413	12	2	8.33	16.67	—	—	—
New Bedford	68,863	20	7	10.00	15.00	—	—	—
Holyoke	50,338	—	—	—	—	—	—	—
Brockton	46,601	14	6	21.42	—	—	—	14.28
Newton	39,310	9	—	—	22.22	—	—	—
Haverhill	39,061	7	1	14.30	14.30	—	—	—
Malden	37,205	6	1	16.67	16.67	—	—	—
Salem	37,188	18	6	16.67	5.55	5.55	—	—
Chelsea	36,499	16	—	18.75	6.25	6.25	—	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	7	0	28.60	28.60	—	—	—
Everett	30,209	13	4	15.40	15.40	—	—	—
North Adams	29,201	8	3	37.50	—	—	—	—
Quincy	26,798	8	2	25.00	12.50	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	11	1	27.27	9.09	—	—	—
Brookline	23,576	—	—	—	—	—	—	—
Pittsfield	22,870	—	—	—	—	—	—	—
Medford	21,956	5	1	—	60.00	—	—	—
Chicopee	21,692	7	4	42.90	28.60	—	14.30	—
Northampton	20,314	7	2	14.30	14.30	—	—	—
Beverly	15,807	5	—	20.00	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	4	0	—	50.00	—	—	—
Adams	14,745	3	0	—	—	—	—	—
Attleboro	14,561	3	—	—	—	—	—	—
Hyde Park	14,500	6	1	—	33.33	—	—	—
Newburyport	14,478	6	3	16.67	16.67	16.67	—	—
Woburn	14,315	5	—	—	—	—	—	—
Melrose	13,819	3	—	—	33.33	—	—	—
Westfield	13,809	6	3	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	4	0	—	25.00	—	—	—
Revere	13,609	3	1	—	33.33	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	13,234	4	4	50.00	25.00	—	—	—
Southbridge	11,716	4	2	75.00	—	—	—	—
Watertown	11,575	1	1	—	—	—	—	—
Weymouth	11,350	1	1	100.00	—	—	—	—
Plymouth	11,189	—	—	—	—	—	—	—

Deaths reported, 4,043; under five years of age, 1,062; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 963; acute lung diseases 860, consumption 378, scarlet fever 51, whooping cough 15, cerebrospinal meningitis 53, smallpox 6, erysipelas 21, puerperal fever 13, measles 49, typhoid fever 69, diarrheal diseases 108, diphtheria and croup 89.

From whooping-cough, New York 8, Chicago, Philadelphia, Baltimore, Boston, Springfield, North Adams and Gardner 1 each. From smallpox, Philadelphia 5, Pittsburg 1. From cerebrospinal meningitis, New York 45, Baltimore 2, Providence 2, Boston 1, Worcester 1, Southbridge 2. From erysipelas, New York 5, Chicago 2, Philadelphia 4, Pittsburg 3, Boston 5, Lawrence 1, Chicopee 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,425, for the week ending April 2, the death-rate was 18.7. Deaths reported 5,464; acute diseases of the respiratory organs (London) 212, whooping cough 234, diphtheria 71, measles 211, smallpox 8, scarlet fever 32.

The death-rate ranged from 8.4 in Walthamston to 28.6 in Rochdale; London 18.8, West Ham 16.3, Brighton 19.8, Southampton 15.3, Plymouth 20.1, Bristol 18.4, Birmingham 24.5, Leicester 13.5, Nottingham 18.4, Liverpool 22.6, Bolton 19.6, Manchester 24.5, Bradford 18.5, Leeds 20.7, Hull 14.0, Cardiff 16.3, Rhondda 16.2, Merthyr Tydfil 22.9, Hornsey 9.0, Wildensen 11.0, Stockton-on-Tees 21.0.

METEOROLOGICAL RECORD.

For the week ending April 16, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 10	29.61	54	66	42	94	50	73	S W	S W	10	6	O.	C.	.78
M. 11	29.76	50	55	44	68	60	64	S W	W	4	8	O.	C.	.06
T.. 12	29.74	48	57	40	89	65	77	S E	S W	13	11	R.	C.	.30
W. 13	29.88	40	48	33	52	41	46	W	N W	16	12	C.	C.	0
T.. 14	29.99	36	42	30	49	36	42	S W	W	6	12	C.	C.	T
F.. 15	30.06	42	51	32	48	57	52	W	S	12	9	C.	O.	0
S.. 16	29.79	35	40	30	100	58	79	N	N W	12	7	N.	C.	.25
	29.83		51	36			62							1.39

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † indicates trace of rainfall. Mean for week.

RECENT DEATHS.

ROBERT MCLELLAN READ, M.D., M.M. S.S., of Boston' died in Santa Barbara, Cal., April 21, 1904, aged fifty-five years.

LORENZO J. KOHNSTAMM, M.D., up to the time of the beginning of his illness a very successful New York practitioner, died at the Manhattan State Hospital, Ward's Island, on April 18. He was forty-two years of age, and a graduate of the medical department of the University of the City of New York in 1888.

SOCIETY NOTICES.

THE TRI-STATE MEDICAL SOCIETY OF IOWA, ILLINOIS AND MISSOURI.— This society will meet in St. Louis, June 15, 16 and 17.

W. B. LA FORCE, President.

ASSOCIATION OF AMERICAN PHYSICIANS.— The nineteenth annual meeting of the Association of American Physicians will be held in the New Willard Hotel, Washington, D.C., on May 10 and 11, 1904.

AMERICAN CLIMATOLOGICAL ASSOCIATION.— The twenty-first annual meeting of the Association will be held in the Banquet Room of the Aldine Hotel, Chestnut Street, above 19th, Philadelphia, June 2, 3 and 4, 1904.

GUY HINSDALE, M.D., Secretary.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 21, 1904.

BROWN, B. W., passed assistant surgeon. Granted leave of absence for two days from April 25. April 19, 1904.

BLUE, RUPERT, passed assistant surgeon. Granted leave of absence for three days from April 19. April 18, 1904.

GREENE, J. B., passed assistant surgeon. Relieved from duty at Havana, Cuba, and directed to report to the medical officer in command at New York (Stapleton) for duty and assignment to quarters. April 20, 1904.

HOLT, J. M., assistant surgeon. To report to medical officer in command at San Francisco, Cal., for duty and assignment to quarters. April 20, 1904.

MCLAUGHLIN, A. J., assistant surgeon. Granted leave of absence for four days from April 20. April 20, 1904.

WARREN, B. S., assistant surgeon. Granted extension of leave of absence for one day from April 17. April 20, 1904.

ASHFORD, F. A., assistant surgeon. Leave of absence for ten days from March 28, 1904, granted Assistant Surgeon Ashford, amended so that said leave shall be for eleven days. April 19, 1904.

ALTREE, G. H., acting assistant surgeon. Granted leave of absence for five days from April 19. April 19, 1904.

BAILEY, C. W., acting assistant surgeon. Granted leave of absence for eleven days from April 22. April 20, 1904.

DUKE, B. F., acting assistant surgeon. Granted leave of absence for six days from April 18. April 18, 1904.

MARSH, W. H., acting assistant surgeon. Granted leave of absence for five days from April 26. April 20, 1904.

MONCURE, J. A., acting assistant surgeon. Department letter of March 31, 1904, granting Acting Assistant Surgeon Moncure leave of absence for thirty days from April 10, 1904, amended so as to read thirty days from April 12, 1904. April 20, 1904.

ILTIS, G. W., pharmacist. Granted leave of absence for twenty-five days from May 5. April 14, 1904.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 23, 1904.

E. P. STONE, surgeon. Detached from the "Mayflower," and ordered to the naval academy.

J. C. PRYOR, passed assistant surgeon. Ordered to the naval hospital, Newport, R.I.

R. C. HOLCOMB, passed assistant surgeon. Detached from the naval hospital, Newport, R.I., and ordered to the "Mayflower."

C. E. STRITE, acting assistant surgeon. Appointed acting assistant surgeon from April 13, 1904.

C. H. T. LOWNDES, surgeon. Detached from the naval academy, and ordered to the "Chesapeake."

C. M. DE VALIN, passed assistant surgeon. Detached from the "Rainbow" and ordered to the "Albany."

J. P. TRAYNOR, assistant surgeon. Detached from the "Albany" and ordered to the "Rainbow."

W. F. ARNOLD, surgeon. Retired from active service April 19, 1904.

BOOKS AND PAMPHLETS RECEIVED.

A Manual of Clinical Diagnosis by Means of Microscopical and Chemical Methods, for Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D. Fifth edition, thoroughly revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

A Bill to Increase the Efficiency of the Medical Department, United States Army, Together with Endorsements by the Secretaries of War and the Brief of the Surgeon General, showing the Necessity for Legislation. February, 1904.

On Disease of the Heart due to Over-Indulgence in Alcoholic Drinks. By W. Hale White, M.D. Reprint.

Some Observations on the Movability of the Apex of the Heart. By W. J. Pettus, M.D. Reprint.

The Value of Ureteric Meatoscopy in Obscure Diseases of the Kidney. A Study in Clinical and Operative Surgery. By E. Henry Fenwick, F.R.C.S. Illustrated. London: J. & A. Churchill. 1903.

Twenty-eighth Annual Report of the Managers and Officers of the New Jersey State Hospital at Morris Plains for the year ending Oct. 31, 1903.

Elements of Water Bacteriology with Special Reference to Sanitary Water Analysis. By Samuel Cate Prescott and Charles Edward Amory Winslow. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1904.

Anesthesia in Dental Surgery. By Thomas D. Luke, M.B., F.R.C.S.E. Illustrated. New York: Rebman Company. 1903.

Manual of Clinical Microscopy and Chemistry. Prepared for the use of Students and Practitioners of Medicine. By Dr. Hermann Lenhartz. Authorized Translation from the Fourth and Last German Edition, with Notes and Additions by Henry T. Brooks, M.D. Illustrated. Philadelphia: F. A. Davis Company. 1904.

A Study of Normal and Pathological Conditions of the Bursæ of the Neck, with Special Reference to the Subhyoid Bursa. By Willis S. Anderson, M.D. Reprint.

Intratracheal Injections: Experimental and Clinical Study of their Value in Diseases of the Lungs. By Willis S. Anderson, M.D. Reprint.

Translations of the Obstetrical Society, of London. For the year 1903. Vol. XLV. Part IV, for October, November and December.

Le Malattie Dei Paesi Caldi loro profilassi ed igiene con un'appendice: La Vita Nel Brasile. Dott. Carlo Muzio. Illustrated. Milano: Ulrico Hoepli. 1904.

Original Articles.

CONTRIBUTION TO THE ETIOLOGY OF IDIOCY AND IMBECILITY.

BY WILLIAM N. BULLARD, M.D., BOSTON.

The following cases have all been taken from the Neurological Clinic of the Children's Hospital of Boston. All the earlier records were taken and written by me personally; the later ones under my supervision. In addition I have personally interviewed one or both of the parents in a considerable proportion of the cases. The trustworthiness of the statements has always been carefully weighed. The positive ones may almost invariably be accepted as true; the negative ones very generally. In the large proportion of cases I have found the parents, when personally questioned, willing to answer the truth — as I believe — to the best of their ability.

In examining the results obtained in this investigation the cases naturally fall into two great groups:

I. The Congenital — those in which the affection has occurred previous to or during labor.

II. The Non-Congenital — those in which the patient has acquired the condition from some cause acting after birth.

We cannot always with certainty determine to which of these classes a given case belongs, especially where several factors may have contributed to produce the result. Doubtful cases or cases in which there is not a strong probability in favor of one class or the other have not been counted.

Out of the whole number of cases examined (258) there are 176 in which this can be determined more or less accurately. Of these 113 were congenital; 63 were non-congenital or acquired cases. The large proportion of the cases in which the condition was acquired after birth was a surprise. It is, however, quite certain that the greater number of those cases which were not counted for want of definite data belong to the congenital class because the cause is much more evident when it occurs after birth. A hemiplegia or other paralysis or a sudden mental defect following or accompanying an acute illness strikes the attention of any one who is present.

We will consider first the etiology of the non-congenital cases because it is much simpler than that of the congenital. The causes which act to produce idiocy and imbecility in children after birth are trauma and disease.

Trauma.— It is so well-known that patients are apt to attribute any affection or disease to an accident or injury that all experienced observers are accustomed to take this tendency into account and not permit themselves to be led astray by any general history or belief.

We have placed the following cases under this heading:

1. (12) Father has phthisis. Mother healthy. Three children, patient second child; others healthy. Labor normal. Never ill previous to accident. Is now three years old. Had a fall five months ago, striking the frontal region. Did not lose consciousness. One month later forgot how to talk. Six weeks ago first convulsion which was unilateral and lasted one hour, shortly followed by another lasting two hours.

2. (67) At seventeen months fell and struck head; convulsions for eighteen hours and left hemiplegia.

3. (81) Labor not severe; dry birth. No illness. Fell at seven months striking back of head; unconscious all day, afterwards fretful. One month later convulsions.

4. (85) Four children; patient third; others healthy. Labor easy, not remarkable. Is seven years old. Well till two years ago when she fell downstairs. No trouble at the time but a month later became confused and incoherent.

5. (102) When three years old fell off piazza, was unconscious fourteen days and had convulsions, aphasia and right hemiplegia. Father died of tuberculosis. There were two children, the patient first; the second died of meningitis when six years old.

6. (172) Parents healthy. Six children; one died of cholera infantum; others healthy. Labor normal. Fell from baby carriage when thirteen months old and then stopped walking until two and a half years old. No other apparent cause for condition.

7. (173) Had one convulsion attributed to teeth when three months old. Otherwise well previous to fall out of hammock when four years old.

8. (210) Seven children; others healthy; patient 4th. Had one convulsion with influenza during dentition. Otherwise bright and active. When five years old fell six feet, striking head.

These eight cases seem with much probability due to trauma. There are in our series four more cases in which trauma is a doubtful cause.

1. (24) Fell and cut head when five years old. Trouble began at six years. Parents healthy. Patient was 9th child. Eleven children; 6th, 7th, 10th and 11th died in infancy; others healthy. Labor normal. No other cause known.

2. (190) Only child. Labor easy. Fall at five months. Convulsions at one year.

3. (213) Patient is a city charge. There is no definite history but those who have the care of patient state that the condition was said to be due to injury.

4. (238) Five children; patient first; others healthy. Labor not remarkable. Born at eight months. Injury to head when two years old. Nothing wrong noticed until it was found when five years old that she could not learn at school.

Out of 63 non-congenital cases we have, therefore, 8 or about 13 (12.69) per cent., probably traumatic, and if we add the 4 doubtful ones we have 19%.

Disease. — The following cases are considered as due to disease:

1. (6) Patient born of healthy parents. Was the seventh child. Labor easy, natural. When eleven months old had an acute disease apparently encephalitis and two months later right extremities were found paralyzed, and child became feeble-minded.

2. (26) Parents healthy. Patient fourth child. Labor normal. Born at full time; blue at birth. When eighteen months old had measles, then varicella followed by meningitis and then convulsions.

3. (38) Affection followed cerebro-spinal meningitis.

4. (45) Affection followed meningitis.
5. (46) Affection followed measles.
6. (52) Measles followed by diplegia.
7. (101) Cholera infantum at eighteen months and twenty months. After cholera infantum spastic diplegia. Previous to this had been bright and healthy and had had no illness except pertussis at eleven months.
8. (103) Labor normal. Severe illness between one and two years old followed by strabismus.
9. (111) Cerebro-spinal meningitis at twenty months was the cause.
10. (122) Healthy until measles at ten months.
12. (131) When nine months old attack of convulsions with right hemiplegia. Meningeal hemorrhage? Family history negative. Four children, patient second; others healthy. Labor instrumental.
13. (143) Affection dates from the age of four years when patient had an acute illness of four weeks' duration with left hemiplegia.
14. (148) Meningitis at two years.
15. Well previous to scarlet fever at three and a half years, from which became deaf and dumb.
16. (156) Well till meningitis at nine months.
17. (159) Well till fifteen months old when she had an illness (called German measles) with fever and convulsions.
18. (175) Well till nine months old. Then convulsions and left hemiplegia.
19. (189) Well previous to measles when a year old. One month after the measles convulsions, and again one month later left hemiplegia.
20. (200) Convulsions and spastic hemiplegia at the age of two years followed by pertussis.
21. (211) Affection followed meningitis at four years.
22. (244) Pregnancy and labor normal. Well until pneumonia when seven weeks old, followed by convulsions.[1]

The above are with strong probability or with practical certainty due to disease which has occurred since birth. In addition there are a number of cases in which post-natal disease is the most probable cause but in which the evidence is not as strong as in those described. Of these there are thirteen. I shall not describe them in detail but mention three taken at random as examples.

(106) Healthy at birth. When six weeks old was ill for one month with convulsions (meningitis?) and the trouble began at this time. The family history is negative and labor was normal. Is blind, dumb and probably deaf.

This case might fairly be placed in the previous class.

(124) Parents healthy. Four children; patient third; others healthy. Labor normal. Walked at one year. At this time became feverish, had convulsions and became feeble-minded.

Here again the evidence is fairly strong in favor of post-natal disease.

(129) The feeble-mindedness in this patient seems to have come on after rheumatic fever when three years old: the first convulsions occurred when three years and three months old. Family history negative. Labor probably normal.

[1] In each case the feeble-mindedness is supposed to have come on at the time of the convulsions.

We have two cases also in which there is a slight predominance of evidence in favor of this cause.

The nature of the disease which produces the feeble-mindedness or idiocy is not always plain. That it is intracranial is evident. Sometimes the cerebral or meningeal symptoms occur alone or essentially so, and sometimes they seem to be concomitant with and forming a part of some acute disease, most frequently one of the exanthemata. In our first twenty-two cases the initial affection was classed as follows:

Encephalitis and meningitis, 6; meningeal hemorrhage, 1; cerebro-spinal meningitis, 2; acute illness usually with intracranial symptoms, 4; measles, 4; scarlet fever, 1; German measles (?), 1; pertussis, 1 (2); pneumonia, 1.

(We have also another case in which the probable cause is pertussis.)

In the case of those in which the cause of the idiocy was probably but not so certainly due to post-natal disease the character of the primary disease is essentially the same.

Encephalitis, 2; meningitis, 1; cerebro-spinal meningitis, 3; sunstroke, 1; acute illness, 2. (One not more fully described, one with intracranial symptoms); rheumatic fever, 1; pneumonia, 1; diphtheria, 1.

Congenital cases. — These number only 113.

The congenital cases are to be divided into intranatal and prenatal. The former, those occurring during labor; the latter, those having their onset during pregnancy before labor begins. It is so often impossible to determine even with probability whether a given case belongs in one or the other group that I shall not attempt to give figures but will offer such evidence as we have in the hope that hereafter with further material more definite conclusions may be drawn.

The longer I study these cases the more I am inclined to attribute them in the great majority rather to a prenatal than to an intranatal cause. This view is based more on the pathology of the cases than on their clinical history. The large proportion, however, of peculiar or unusual circumstances in labor in this class (congenital cases) suggests that labor and its attendant conditions has a distinct bearing and is at times at least the exciting cause.

The only clinical evidence of intranatal causation is: (1) The direct history of an accident or injury with visible signs, such as fracture or depression of the cranial bones. Even this is not certain proof that the cerebral condition was not pre-existent. Depression of the cranial bones during labor does not necessarily involve any intracranial injury, and a serious intracranial lesion is required to produce the conditions under consideration. We have in our series no cases of this character. (2) The occurrence of unconsciousness, convulsions or other acute cerebral symptoms immediately on birth suggests intranatal lesion.

The following cases have presented this condition:

1. (8) Patient third child. First died of spinal meningitis; second healthy. Parents healthy. Labor severe; lasted four hours; no instruments used. The cord was round the child's neck and he was asphyxiated. He cried for eighteen hours after birth.

2. (56) Mother had pains for four to five weeks before delivery. Labor pains severe for seven hours. Patient was blue when born and was unconscious for three hours after delivery. Head was much out of shape.

3. (74) Placenta previa. Child asphyxiated. Had "spasms" for three days after birth.

The next case is more doubtful: the cause may have been prenatal.

4. (99) When six months pregnant, mother while carrying coal upstairs felt something crack but had no further symptoms. Labor severe; pains for twenty-two hours, severe for ten hours; forceps used; patient asphyxiated. This patient had a right hemiplegia involving the face at birth and the left lower extremity was also affected. For seven days after birth refused to nurse.[2]

Whatever may be the part played by the processes of labor and delivery in these cases, it would seem from our records that there was a much larger proportion with difficult or troublesome delivery among the congenital than among the non-congenital. This cannot be due to the placing of those cases in which the labor was difficult among the congenital because we have counted as acquired only those in which we had a distinct history of trauma or disease.

In the twelve cases in which the lesion causing the idiocy or imbecility was most probably intranatal there was only one in which the labor was easy, and in this case (105) the child was said to have been asphyxiated. There was one case also of breech presentation (205) and one of twins (233). The other cases were as follows:

1. (8) Patient asphyxiated: cord around neck. (See above.)
2. (11) Patient asphyxiated. Waters broke two days before birth.
3. (56) (See above.)
4. (66) Severe; forceps were applied for three hours.
5. (74) (See above.)
6. (99) Labor severe; forceps; asphyxiated.
7. (100) Labor severe; twenty-six hours; forceps; difficulty in delivering body and child asphyxiated.
8. (170) Forceps delivery; mother having convulsions at the time (eclampsia).
9. (231) Pelvic obstruction.

In the 26 cases in which labor was a probable cause, but in which the degree of probability was not so great as in the preceding 12, we find that 17 were noted as severe, hard, difficult or long; 2 as medium. Breech presentation occurred in 3 cases and foot presentation was reported in 4 more. Twins occurred once and once there was a three months' fetus present when patient was delivered. Placenta previa occurred once and once there was obstetric paralysis.

We have, besides the above, 42 cases in which the cause was probably prenatal, excluding those in which heredity or inherited syphilis might exist. In these the character of the labor was unknown in 2. In 32 it was normal, one of these cases being twins, and in two others we have only records that forceps were used but no more definite statement — these were classed as normal. Six cases were noted as hard or severe; in none were forceps used; one child was said to have been asphyxiated; others no report.

If we compare the cases in which labor was a possible or probable cause with those in which the affection was supposed to be acquired we find a marked difference in the character of the labor. We have 12 cases of trauma and 41 of disease making 53 of acquired imbecility. Labor was reported normal in every case of trauma, except two in which its character was unknown. There was one case of twins. In the cases in which post-natal disease was considered the cause the labor was normal in 33 cases; unknown in 2; instruments used (no further information), 1; hard, severe, or very severe, 5, in one of which the mother had convulsions, forceps used in 3 of these; not used in the other two. In one of these child reported asphyxiated (this was the one in which the mother had convulsions); in 3 not asphyxiated; in one not reported.

Therefore out of 39 acquired cases labor was normal in all but 5, and in none of these does it seem to have been dangerous or really beyond natural limits except in the one in which the mother had eclampsia and the child was asphyxiated.

Out of the 38 cases in which the cause of idiocy was probably or very possibly intranatal we find that in 18 cases forceps were used; in 10 cases presumably of presentation of the head, forceps were not used; in 8 cases the presentation was breech or foot and in 2 cases it was not known whether or not instruments were used. Out of 36 cases, therefore, forceps were used in 18 — just one half.

I have not been able to find in these cases any evidence of injury from the forceps. It seems very probable that in cases of intranatal origin the affection is as liable to be caused by prolonged pressure on the head during delivery as by any injury from forceps. We have not sufficient data as yet to draw any certain conclusion but it is certainly possible that delay in the use of the forceps tends to produce this affection quite as much or more than their skillful employment.

Passing now to the prenatal causes, the only objective ones are the injuries which occur during pregnancy to the mother or child. When first obtaining the histories in these cases the importance of the conditions during this period was not realized and no special inquiries in this direction were made. Consequently we have only a small number of cases (39) in which we have records in relation to the conditions during pregnancy. In many cases probably only notes were made when there was something to call special attention to the maternal condition at that time. Out of those 39 cases in which definite statements were recorded we find that

[2] It is difficult to estimate the value of the term asphyxiated in these cases. We cannot distinguish from the history between those cases in which there was serious trouble and those in which the difficulty was slight.

the pregnancy was noted as normal or perfectly normal in 11. In 10 there was a history of much worry on the part of the mother during pregnancy, sometimes induced by the death of a relative; sometimes from other causes. In one of these cases it was noted that there was worry and fright, and we have two more cases with the history of a severe fright to the mother during pregnancy. There were 9 cases in which the mother had a more or less severe fall including one in which she was knocked downstairs, and in these the element of fright was often included. There were 2 other cases of trauma making 11 in all. There were 3 cases of illness of the mother at this time, one of heart disease, the mother dying three days after delivery; two of grippe. There were two cases also in which the mothers were very weak during pregnancy but with no definite disease, and one case was specially mentioned in which the mother was overworked in a factory.

I consider this at the present moment really the most important group for investigation from the standpoint of causation. In the first place because fewer statistics have been obtained in regard to the conditions which exist during pregnancy in this class of cases, and secondly because we need much more detailed knowledge of the value of the causes which are assumed or suggested as of influence in this direction during this period. We have no definite data to show us what probability there is that prolonged worry or anxiety at this time produce definite cerebral results; we do not know what significance to attach to a fall or other injury during pregnancy, when, as in most cases, no definite clinical symptoms follow. We are still almost wholly in the dark in regard to the diseases of the fetus or child before birth and how such diseases may affect the central nervous system. We can gain only a dim perception of these things from such knowledge as we possess of the causation of non-development of the fetal brain or of monstrosities.

I have purposely refrained throughout this paper from referring to the pathological conditions which may exist in these patients, but I must state here that there is strong evidence in many cases of affections of this class from the pathological standpoint that the disease occurred or began at some period previous to labor. If, therefore, we hope to diminish the number of the feeble-minded or idiotic children we must seek among other causes those which act previous to labor and determine whether or not they are remediable.

Heredity.— It is somewhat difficult to decide how large a part heredity plays in the causation of feeble-mindedness and idiocy but there can be little doubt that it is a potent factor in a considerable number of cases.

It is a matter of slight importance as regards results whether the inheritance be direct or what is sometimes, though incorrectly, termed indirect, whether the disease or affection appear in the immediate or collateral ascendants. The character of the inheritance is of more importance. We have reason to believe that where one of the parents is feeble-minded the offspring is more likely to be feeble-minded than is the offspring of healthy parents. We know that epileptics are liable to beget epilepties, and we believe that a person in whose family a non-traumatic epilepsy exists is more liable to epilepsy than one whose family is free from epileptic taint. In the same way we believe that where there is an epileptic taint in the family, feeble-mindedness is more probable. As to the importance of other diseases or affections of the central nervous system we must for the present take an undecided position and await further evidence. The relation of tuberculosis to feeble-mindedness is still doubtful. There is no sufficient evidence that it tends in any way to its production.

Besides these affections which are liable to run through or infect a family we have certain affections or conditions acquired by the parents which have unquestioned effect upon the offspring. The principal of these are syphilis and alcoholism.

In considering our own cases we find that in 183 in which the health of the parents was recorded, in 137 they were both reported healthy. In nearly all these cases we are justified in the presumption that the family history was negative, though this is actually stated in only 34. There are also 5 cases in which while the parents were healthy there was a poor heredity.

Descending to detail we find one patient whose father was imbecile; two whose mothers were of poor mental development, and two from the same family who had a cousin that was not bright. We find no cases in which either parent had epilepsy, but one patient had an epileptic uncle and another an epileptic cousin; while in a third case a paternal cousin died in a fit and 6 of the father's family had brain trouble. Besides these cases there was one in which the mother had hysteria and one in which the mother some time later committed suicide. One patient had an insane aunt; one had two uncles who died as infants in convulsions.

Out of these there are only three in which either of the parents was seriously affected and two more in which the mother had some indefinite nervous affection which might or might not have a bearing on the etiology of the affection in the child. We have seven with a history of nervous disease of more or less importance in the collateral members of the family. I should attach considerable weight to the existence in these of imbecility or epilepsy; much less to the presence of other affections of the nervous system. Too many children die of convulsions to make such an occurrence of more value than a possible indication of some tendency to cerebral weakness and hyperexcitability which would have but an indirect bearing on the affection of the collaterals.

Syphilis appears to play a smaller part in the production of feeble-mindedness than was formerly suspected. The following cases, 11 in

number, are those in which it was present or there were reasonable grounds for suspicion. There are only 4 in which the father was known to have syphilis. It is plain, however, that the mere fact that the father has or has had syphilis is not sufficient to determine that this is the cause of idiocy in the offspring.

SYPHILIS.

1. (188) Fourth child. Labor normal. Pregnancy normal. First, second, third children healthy; fifth and sixth stillborn. Sleepy for twenty-four hours after birth. Internal strabismus.

2. (189) Cretin. When two months old snuffles and trouble with throat. Four pregnancies, patient first; second and fourth miscarriages.

3. (92) Father had syphilis. Mother alcoholic. Pregnancies six; patient fifth; second a miscarriage at two months from fall. Sixth had imperforate anus; others healthy.

4. (94) Labor severe, instrumental. Father does not live with mother. Mother healthy. Children two; patient second; first had snuffles, died eighteen months, tonsilitis.

5. (49) Father syphilis. Mother healthy. Labor long; instruments. Twelve pregnancies, patient twelfth. First, miscarriage at six months from lifting. Second healthy; third died two and a-half years old of brain trouble; fourth, died, diphtheria; fifth healthy; sixth miscarriage at seven months, cause unknown; seventh healthy; eighth, ninth, tenth, eleventh, miscarriages at seven months, cause unknown.

6. (44) Father drinks and has deserted wife; mother healthy. Pregnancies six; four children all died young from icterus neonatorum. Sixth miscarriage due to variola. Patient is the first.

7. (43) Hydrocephalus. Snuffles as a baby; skin peeled off; intestinal trouble. Born at seven months. Eight pregnancies, patient eighth. Sixth and seventh stillborn; fifth clubfoot; first to fifth inclusive healthy; but second died at seventeen months of cholera infantum.

8. (29) Cicatrices on soft palate and tonsils with stenosis. Patient is third child. Five children; fifth stillborn from worry, others healthy. First child has ulcerated lymphatic glands in the neck. Frontal bones very prominent. Parents healthy.

9. (23) Snuffles. No eruption. Parents healthy. Labor natural. Pertussis with diarrhea at one year to which is attributed present trouble. Four children; first stillborn; second patient; others healthy.

10. (21) Labor natural. Spinal trouble at nine months; plaster jacket. Hydrocephalus at two years. Father syphilis fifteen years, but last symptoms after pregnancy of patient. Mother has uterine trouble. No other children.

11. (3) Father has syphilis. Labor natural; third child.

Alcohol in the parents undoubtedly plays an important part in the causation of the troubles we are considering — partly probably by direct action upon the tissues and constitution of the offspring, but largely indirectly through the exposure of the mother to injury, fright or worry during pregnancy. We find seven cases — one doubtful — in which this was a factor in the condition. There are two points to be mentioned in relation to alcohol as a cause.

On the one side is the difficulty of obtaining exact information on this subject; on the other, the fact that alcoholism is frequently combined with syphilis, and the effects of the two cannot always be distinguished. I believe, however, that in these cases by means of direct personal interviews with the parents the first difficulty has been reduced to a minimum.

The amount of alcohol taken is of great importance. It is only in cases of excess that any essential influence is to be feared. The question of alcoholic condition of the parents at the time of coition is of much importance, but this can unfortunately rarely be determined.

We find in our statistics only eleven cases in which an alcoholic history was obtainable.

1. (18) Father alcoholic.
2. (38) Father drinks steadily but not to excess; mother's brother alcoholic.
3. (39) Father alcoholic.
4. (44) Father drinks; has deserted wife; possible syphilis.
5. (61) Father alcoholic. Mother drinks a little.
6. (68) Father very alcoholic; mother alcoholic; patient has hydrocephalus.
7. (160) Father alcoholic; has deserted wife.
8. (185) Father alcoholic.
9. (251) Father drinks at times.
10. (90) Father alcoholic.
11. (92) Father has syphilis; mother drinks.

Lastly, we come to what is in my opinion an exceedingly important cause of feeble-mindedness on which sufficient stress has not been laid. This is maternal uterine disease. How often this acts we do not know. It seems to me possible that many otherwise unexplained cases are due to this. I find fifteen cases in which this cause is suggested. Frequent miscarriages may be due to this as well as to syphilis or other causes.

Attempted abortion undoubtedly also plays a part in the causation. It is not probably a very frequent cause. It is a cause which it is difficult to detect because it is almost the only one about which the parents under the most favorable circumstances cannot be expected to tell the truth.

While not discussing in this paper the pathological conditions existing in these patients I will note that we find among the 258 cases 11 cases of hydrocephalus as follows:

1. (No. 21) See syphilis. Father acquired syphilis eleven years preceding birth; the last symptoms (throat) came on after wife was pregnant with patient. Father does not drink. Mother healthy except for uterine trouble; has been married five years; no signs of syphilis. Patient is only child. No miscarriages. Labor easy, natural. Patient had spinal trouble (caries) when nine months old and wore a plaster jacket. When two years old was ill; stupid for two days and after this hydrocephalus was noticed. Is now three and a half years old.

2. (No. 39) See alcohol. Father alcoholic, healthy; mother healthy. Patient is an only child. No miscarriage. Labor not remarkable. Hydrocephalus first noticed when three months old.

3. (No. 43) See syphilis. During second month of pregnancy father disappeared and was never found; much worry during pregnancy. Labor easy; was born at seven months. Eighth pregnancy. Sixth

and seventh children stillborn at term. Hydrocephalus noticed while a baby.

4. (No. 35) Patient eight years old, has spastic diplegia. Has webbed fingers, hypospadias and hydrocephalus. He was the fourth pregnancy. The first and second were miscarriages at three weeks; third, a healthy child, died when nine months old of cholera infantum. Labor long and difficult; child had the cord around his neck and was asphyxiated; no forceps used. Had convulsions at birth. Parents healthy. One uncle epileptic. Tuberculosis on paternal side. Maternal grandmother died of phthisis.

5. (No. 57) Spastic paraplegia. Hydrocephalus. Mother well during pregnancy. Labor difficult. Feet presented. Child born while mother was standing and fell striking head on floor. Cried from birth. Convulsions when a year old. Ten children, three dead; others healthy. Patient ninth.

6. (No. 68) See alcohol. Father very alcoholic. Mother alcoholic. When three months old had spinal meningitis with hydrocephalus.

7. (No. 73) Parents healthy; labor normal. Hydrocephalus followed pneumonia when nine months old. Fifteen children; patient fourteenth; others healthy; six dead, two at birth, one when eleven days old, the other three of diseases having no bearing on patient's condition. Patient had meningitis when two years old.

8. (No. 78) Convulsions came on when six months old, followed by hydrocephalus. Had been bright previously. Parents healthy. Labor severe; forceps not used. Five children; first died when sixteen months old, of hydrocephalus; second has hip disease; patient fourth; third and fifth healthy.

9. (No. 91) Parents healthy. Five children; patient second; others healthy. Labor normal. Pneumonia when seven months; mumps at nine months.

10. (No. 108) Father subject to rheumatism; mother not strong. Two children; patient second; other healthy. Labor not severe; born at eight months; feet presented; was asphyxiated. Never healthy; convulsions frequent during dentition. When one year old cholera infantum and hydrocephalus.

11. (No. 133) Parents healthy. Six pregnancies; first died when a year old of pneumonia; second not strong, drags feet; third does not speak, rickets; fourth, patient; fifth miscarriage at three months, cause unknown; sixth healthy. Patient has rickets. Had cholera infantum at three months; otherwise well.

12. (No. 225) No family history. Labor hard. Forceps not used. Only child. Convulsions at three months. No other illness.

The statistics in this paper can only be considered preliminary to those which I hope may be obtained in the near future. Anything which may tend to the prevention of feeble-mindedness and idiocy is of the highest importance and I desire to turn the attention of all those who may have the opportunity to observe or investigate facts bearing on the etiology of these cases to the great value of such facts if properly recorded and published.

A SIGMOID BAND OF UNUSUAL ORIGIN. OPERATION — RELIEF.

BY ARTHUR L. CHUTE, M.D., BOSTON, MASS.

THE following case presents an intestinal band of very unusual etiology. While it would seem as if the literature must contain similar examples, I have been unable to find any.

In December, 1898, I saw a woman of twenty-two in her first labor. When seen she had been having more or less severe labor pains for nearly twenty-four hours, and was pretty well exhausted. A much moulded head was found arrested just below the brim of the pelvis. The patient was delivered immediately by a moderately difficult forceps operation. She had an afebrile and apparently normal convalescence. Her bowels were confined for a few days, because of repair of the perineum. When the patient had been about for some days, there developed a fissure of the anus for which the sphincter was dilated and the patient again discharged, her bowels moving regularly and without pain.

About a month later I was again called and found that the patient had had no movement of the bowels for seventeen days. Her abdomen was slightly distended but neither tender nor tympanitic; she had had no vomiting. The over-loaded bowel was relieved by enemata. Then for several weeks a large number of the usual cathartics were tried; at first with result, but gradually they all lost their efficacy. The patient even took for a few days two-drop doses of croton oil without effect. On one occasion she took, on her own initiative, five drops of croton oil which gave her very severe abdominal cramps but no dejection. In conjunction with the use of the cathartics, regulation of diet was carefully attended to, and abdominal massage was also tried; for some time electrical stimulation was used, but all without result. Except after a powerful cathartic there had been no pain; distention was variable but never excessive. There was a tender spot some three or four inches below the umbilicus and to the left of the median line, yet nothing could be felt at this point.

After the over-dose of croton oil, cathartics were given up. The patient took a daily enema and had a dejection almost immediately afterward. After the first gush of bowel contents all forced attempts at defecation were useless, and there was the feeling that the more she strained the tighter the obstruction became. It was noticed that only a small part of the injected water was returned, and that for an hour or two afterward the patient passed large quantities of very clear urine.

The condition remained unchanged, and in November, 1899, I opened the abdomen by a median incision, expecting to find some trouble in the pelvis. None was found and I closed the abdomen without making as extended a search as I should have done. The convalescence was uneventful. For a few days before leaving the hospital the patient had a daily dejection following seventy-five-drop doses of fluid extract cascara, given three times a day; however, on returning home her condition became as before.

In January, 1900, this patient became pregnant for the second time and delivered herself at term, after a moderately hard labor. The convalescence was afebrile.

From December, 1899, until February, 1902, the patient did not have a single natural dejection. In February, 1902, I sent her into a hospital for observation. At first she was fed large quantities of bulky food and given neither cathartics nor enemata. Two or three attempts of this sort showed its futility, as at the end of forty-eight hours she would have a violent headache and begin to vomit. Various cathartics in small doses produced no effect; in larger doses they caused vomiting and griping abdominal pain. Nothing but an enema would bring about a dejection. When given an enema of a quart, quantities varying from 8 to 14 oz. of stained water containing fecal masses

would be returned within a few minutes. The rectal tube, passed as high as possible, failed to recover the rest of the water. After each enema the patient would pass for an hour or more a greatly increased quantity of colorless urine. It was found that an enema of a few ounces acted quite as well as a larger one, and that after the first gush of bowel contents, straining accomplished nothing; also that enemata if repeated before a number of hours had passed produced no result.

General examination of the patient was negative except that the blood count showed a slight anemia, and that the urea was low — about half the normal. The patient's abdomen was slightly distended, everywhere soft and no masses could be felt. There was the same tender point below and to the left of the umbilicus. There was no visible peristalsis. Pelvic examination showed no abnormality. Rectal examination showed nothing except inability to introduce any instrument further than 6 or 7 inches. The instrument would then cause great pain and refuse to advance under the use of justifiable force.

I opened the abdomen for the second time in March, 1902. The omentum was lightly attached to the abdominal wall at two or three points along the old incision. When these were separated a considerably enlarged sigmoid came into view. A band between 2 and 3 mm. in diameter and 4 inches long arose from the free border of the sigmoid some 6 or 8 inches above the floor of the pelvis, and was attached to a point on the abdominal wall to the left of the median line. Its point of attachment to the abdominal wall corresponded to the place that had been tender. At a point a little above this band an appendix epiploica was attached to the omentum by a slight adhesion. These bands were tied and cut. The pelvis showed no adhesions. The sigmoid above the band seemed distended and thinned, instead of thickened, as one would expect to find it, in a segment of intestine that had been attempting for some years to overcome a not impassable obstruction.

Convalescence was uneventful. With moderate doses of laxatives the bowels moved daily, on several days she had more than one dejection. In the first three months after operation she had a dejection daily and used enemata but twice. When last seen, a year after operation, her bowels had moved daily, with one exception. She still depended on laxatives but required a smaller dose.

This case belongs to the general class of sigmoid adhesions causing chronic obstruction. Its greatest interest is in the etiology, though the nature of the band (an appendix epiploica) is not of common occurrence. The mechanism of the occlusion and its duration also present points of interest.

The fact that this patient had been well previous to her confinement, the absence of a febrile convalescence, the appearance of symptoms soon after her confinement, and the finding of no adhesions about the uterus, ovaries or tubes, lead to the conclusion that the band must have been the result of some injury received during labor. It seems probable that during delivery an appendix epiploica, or possibly the sigmoid, received some injury to its peritoneal coat, presumably by being caught between the edge of the pelvic brim and the child's head, or the edge of the pelvis and the forceps, and that this abraded surface became adherent to the abdominal wall during the few days the bowels were confined after delivery.

Sigmoid bands arising from mechanical injury during labor are very unusual. In a quite extended search of the surgical and obstetrical literature I have been unable to find a similar instance. Large numbers of bands have been reported following uterine sepsis and inflammation of the pelvic organs, and a number of cases are reported in which the sigmoid has adhered to malignant growths of either the uterus or an ovary, also a few in which the adhesion has been to cysts. In men this type of adhesion is rarer than in women. The usual causes in men are: disease of the appendix, dysenteric ulcers, tuberculous peritonitis and injury. These same causes may of course produce the condition in women.

In spite of the fact that these bands usually arise as a result of inflammatory processes or new growths, the many instances of post-operative bands, and the fewer cases in which bands have followed contusions of the abdomen, point to the probability of any injured or abraded peritoneal surface as being a sufficient cause for an intestinal band. Fagge, Franklin, Schwyzer, Kempe and Brown, Riedel and Kalloch all report instances where adhesions have followed non-penetrating injuries of the abdomen.

Several things make it more probable that the band in this patient developed from an injured appendix epiploica rather than from an injury to the serous surface of the sigmoid. The position of the band was above the point where the sigmoid crosses the pelvic brim; it was also on the free border which would be away from the bony edge. Also, the clubbed end of an appendix epiploica renders its incarceration between the pelvic brim and the descending head much easier than that of the smooth surface of the sigmoid. The position of the band, diametrically opposite the mesentery, and the absence of any scar on the intestine, also point to the probability of the band being of this origin. Had a bit of the circumference of the intestine been caught we should have had a condition like a Richter's hernia and undoubtedly attended with symptoms at the time. Bands which are the result of appendices epiploicæ forming adhesions are not very common. However, Ribes and Daniel, Dun and Riedel report such instances. In one of Riedel's cases the nature of the band was confirmed by microscopical examination.

As regards the mechanism of the obstruction in this case, the pull of the band apparently caused an incomplete occlusion by kinking at its point of attachment to the sigmoid, making it difficult, but not impossible, for bowel contents to pass. The inability of the lower segment of the sigmoid and the rectum to empty themselves without the help of an enema is not easily explained, except on the ground of some inhibitory reflex. Cabot reports a man of fifty-four in whom there were adhesions from the sigmoid to the bladder and pelvic wall, and in whom there was inability to empty the rectum without in-

jections, although in his patient, as in mine, the obstruction was not sufficient to entirely prevent the passage of feces into the rectum.

The length of time which some of these bands have existed before giving serious trouble is quite remarkable. In one of Cabot's cases symptoms first appeared thirty years before the time of operation. Watkins reports a patient who had symptoms for eight years, Rosenwasser one for six years, Treves, Elliot, Lotheisen, Riedel and Downes report cases in which the symptoms have covered shorter periods.

Constipation gradually increasing in obstinacy is the symptom which is most frequently seen in these cases of kinking of the sigmoid by bands. Tenderness in the left iliac fossa is common, though the seat of tenderness has varied with the point of attachment of the band. Occasionally defecation has been painful. The amount of distention varies but is usually moderate. Visible peristalsis is not common. Pain and vomiting are usually seen only during intercurrent attacks of complete obstruction, which are not uncommon in the course of these cases. Gurglings and attacks of diarrhea are not often mentioned. In a large proportion of cases examination has shown nothing more than local tenderness.

In making a diagnosis, the history of an abdominal operation, previous attacks of appendicitis, puerperal sepsis or pelvic inflammation is of the greatest aid. With such a history obstinate constipation, not affected by the usual treatment, particularly when accompanied by tenderness in the lower abdomen, should lead to a consideration of the probability of the obstruction being mechanical. In the light of the reported ease, and that of Cabot, the ability to secure dejections by enemata, when large doses of cathartics persistently fail, may be a diagnostic sign of some value.

A study of the reported cases of chronic obstruction by bands or adhesions to the sigmoid shows that many of these patients, though having had symptoms for years, have been supposed to be suffering simply from particularly obstinate constipation, until such time as an acute and often fatal obstruction has taken place.

These bands are especially apt to bring about an acute obstruction during pregnancy or the puerperal period, and their diagnosis at this time is attended with particular difficulties.

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CLINICAL MEETING OF THE STAFF, TREADWELL LIBRARY, FEB. 12, 1904.

In the absence of the President, DR. H. H. A. BEACH took the chair.

DR. R. G. WADSWORTH read a paper on "The Ultimate Results in some Gynecological Operations at the Massachusetts General Hospital." This paper was published in full in the JOURNAL for March 24, 1904.

DEVIATION OF THE NASAL SEPTUM.

BY A. COOLIDGE, JR., M.D., BOSTON.

A SYMMETRICAL nasal septum is an exception rather than the rule. When the deviation interferes with the normal functions of the nose it is of course desirable to correct it, provided this can be done with a fair chance of a successful result. Deviations are so varied in form and extent, and the access to the seat of operation is through so small an opening that it is only in recent years that any satisfactory or even promising methods of operation have been established. The problem is a peculiar one. A perpendicular plate of cartilage is inserted into a perpendicular plate of bone along three quarters of its edge, while the remaining quarter projects outwards to form the external nose. In infancy the septum is relatively small; after the second dentition it begins to grow in relation to the surrounding structures, and this growth in the white race is especially marked in a forward direction. It pushes outwards the external nose, both the nasal bones and the cartilaginous bridge. To appreciate this it is only necessary to compare the profiles of children with those of their parents. It is a matter of common observation that most of us have asymmetrical skulls, and it is easy to imagine the effect of even a slightly asymmetrical development upon this thin perpendicular plate of mixed cartilage and bone, held firmly in a bony frame, trying to grow forward. That it should twist and bend is almost to be expected, and although it may do so in many different ways there are a few general principles which are worthy of notice. In addition to varying curves of the septum as a whole, the first thing to be expected would be a bending along the weak

points, that is the synchondroses of the cartilage with the bones, the vomer and perpendicular plate of the ethmoid. This bending would easily result in a dislocation, which, as it takes place slowly, is more or less masked by processes of repair. In this way spurs and ridges of mixed cartilage and bone appear on the convex surface of the bending septum, while the upper edge of the vomer sometimes appears as a rounded spur in the concave side. A second result which might be expected is found towards the center of the cartilaginous plate, in front of the bony septum. This plate being held firm by the maxillary spine below and by the nasal bones above, but comparatively movable in front, is often bent on a perpendicular axis, at about right angles to the dislocation behind. This may vary from a slight bowing of the cartilage to a sharp bend at an acute angle, coming just opposite the nasal process of the superior maxilla at the introitus of the nasal cavity, where it most easily obstructs breathing. In many cases of extensive deviation these three processes, bowing of the septum as a whole, dislocation of the cartilage and vomer, and a purely cartilaginous bend from the nasal spine of the maxilla, at right angles to the other, may be easily traced. The external nose, that is the nasal bones, or cartilaginous bridge or both, may take part in the asymmetry.

During the past three months I have in the hospital operated upon 12 cases, of which I show 5 this evening. Deviations vary so much that widely different methods must be adopted for different cases. In these cases the type of deviation was that already mentioned, a septum more or less bent as a whole, with a sharp angle which could be demonstrated as due to a dislocation of the cartilage from the vomer, and more or less perpendicular bend of the cartilage above and anterior to the maxillary spine. In these operations I have used some of the principles or instruments of Asch, Roe, Watson and Gleason. Where there is a perpendicular cartilaginous angle on the obstructed side a piece of cartilage is removed from the whole length of the angle, care being taken not to injure the mucous membrane of the concave side. This is easily done by a steel cylinder, sharpened at one end, an instrument introduced by Dr. Mixter for removing a core of tissue for pathological examination. A saw is then introduced along the floor of the obstructed cavity, and the cartilage separated from the vomer and maxillary spine, by cutting obliquely upwards through the septum. The free lower edge of the cartilage can then be forced over the free upper edge of the vomer into the concavity of the opposite side, where it overlaps and maintains itself in position. This overlapping is due partly to the oblique incision, and partly to the fact that a bowing septum will of course have redundant tissue when it is straightened. It is well to curette away the mucous membrane from the line along which the lower end of the cartilage is to rest. If the septal bones are markedly deviated from the median line, they are then fractured and set as near the median line as possible. A hollow tube is put into the previously obstructed cavity for support, and retained for a few days to a few weeks. There is often at first considerable over-correction, which disappears in a few weeks. A good final position of the septum can be encouraged by leaving out or putting in tubes of the proper size and shape during the first two or three weeks. A tube is easily removed daily, washed and re-inserted.

In regard to an anesthetic, if the operation can be done by cutting cartilage only, it is often easy to do it with cocaine, but if any bone is involved, ether is advisable.

F. C., schoolboy, age eleven. Respiration on the left side much obstructed by deviation of the septum with a spur at the vomer-cartilage synchondrosis, and a perpendicular cartilaginous spur at nasal process. Operation with ether Dec. 17. Both spurs removed, cartilage separated from vomer, and incision brought forward anterior to nasal spine. Cartilage pushed over into concavity in right side; holds itself in good position. Hollow rubber splint.

Dec. 17. Over-correction. Smaller splint. Dec. 24. Slight over-correction, splint left out. Dec. 26. Small tube into left cavity. Jan. 13. Splint omitted. Jan. 30. Septum practically straight.

V. M., clerk. Age twenty-five. Nearly complete occlusion on right side of nose. Bend of septum along the vomer-cartilage synchondrosis. Anteriorly a bowing of cartilage without any sharp angle, nearly obstructing respiration behind the ala. Concavity in left side, with rounded top of vomer showing as a ridge.

Jan. 8. Operation with ether. Mucous membrane over upper part of vomer in left side curetted. An oblique cut with a saw from the right into the left cavity, separating cartilage from vomer and maxillary spine. Cartilage pushed easily into left side, good position. Jan. 19. Slight over-correction, splint omitted. Feb. 11. Septum nearly straight, slight over-correction.

J. B., mill operator, age twenty-three. Deflective of external nose, nasal bones and cartilage, to left. Septum much deviated into right cavity along lower edge of cartilage.

Jan. 30. Operation with ether. Both nasal bones separated by a saw from nasal processes of superior maxilla, and fractured. Placed in median line. Cartilage separated from vomer, and forced into left cavity. Vomer fractured and placed in median line. Long splint put in. Considerable over-correction. Feb. 4. Over-corrected. Splint removed. Feb. 11. Over-correction less marked.

M. R., cigar maker, age twenty. Patient complains of difficulty in breathing through right side of nose. Deviation of septum due principally to dislocation of septum from vomer; very slight bending of vomer, or of ethmoid or of cartilage anteriorly.

Feb. 9. Operation with cocaine. Mucous membrane curetted from upper part of vomer, incision along synchondrosis, cartilage pushed into other side, where it remains firm, forming a slight over-correction.

Feb. 16. Hollow splint removed. Slight over-correction.

F. C., clerk, age fifteen. Has always breathed through mouth. For three years the right side of nose has been nearly entirely occluded. External nose; nasal bones straight, cartilaginous bridge mark-

edly deviated to the left. An extensive deviation with sharp angle along the whole cartilage-vomer synchondrosis, also a sharp cartilaginous perpendicular bend occluding the introitus on the right. Deep concavity in the left side. A large mass of adenoid vegetations in the naso-pharynx.

Feb. 13. Operation with ether. Removal of sharp angle, reduction of dislocation and fracture of bony septum as already described. Also removal of adenoid vegetations.

Feb. 23. Tube replaced by pin inserted through the septum from the left side.

Feb. 25. Slight over-correction of septum, splints omitted. External nose deviation of cartilaginous bridge reduced one half.

USE OF THE SPHYGMOMANOMETER.

BY H. F. VICKERY, M.D., BOSTON.

On my last service I had every patient who came into my care measured with the sphygmomanometer upon entrance as a matter of routine. I have not the patients to show, but would like to speak briefly about things that interested me in that experience. There were 267 patients in whom the resistance of the radial artery was measured with the Riva-Rocci machine. Some patients were not measured because they were delirious or for other reasons.

I think the measuring of the pulse-tension a useful addition to the modes of studying medical cases, and I was impressed with the discovery of high tension by the machine in cases in which I had not suspected it. I was glad to see that Dr. Oliver of London and others in this country have made similar observations. Dr. Oliver says when the radial artery is of normal size one can tell the tension pretty reliably, but if the artery is not more than one half its normal caliber very good clinicians will fail to appreciate a tension of 160 or 200 mm. of mercury, whereas the average tension of a healthy man might be put at 140 and of women and children less.

In regard to diagnosis, first, it was present in all the cases of nephritis, I think without exception. It is said not to be present in a purely parenchymatous nephritis, but I do not think I had such a case. Some of the cases of nephritis were complicated with heart lesions, but that did not prevent the tension being high, and in fact, as we shall see in a moment, heart lesions are quite consistent with high tension apart from any nephritis. As improvement occurred in some of the nephritic cases the tension lowered.

I might mention incidentally as confirming the value of the manometer in diagnosis in nephritis that I have under observation two adolescents with constant albuminuria, one lasting some years, with absolutely no casts whatever, and they have a low tension, whereas a man of about forty who came to me lately with beginning interstitial had a tension of 210.

In aneurism Dr. Norris of Philadelphia and others have compared the two radial arteries. My house officer, Dr. Fitch, tried this and found in two or three cases a dissimilarity in the measurement, 110 compared with 132 in one patient, 112 compared with 123 in another. In a third case of aneurism there was no difference in the two arteries.

It is said that in hemiplegia there is also a disparity in the two sides. I had one hemiplegia case, but failed to measure the pulse except on one side. That was thought to be a thrombosis and the tension was low, 140, whereas if there is cerebral compression as in case of active hemorrhage that might be cut down on, the tension is high. We had an intracranial tumor with choked disc and severe headache in which the tension was only 130.

We were on the watch for typhoid perforation, but did not have any. The cardiac cases were astonishing to me. All sorts of cardiac lesions in different individuals are capable of presenting a high tension, persons with aortic regurgitation perhaps less often than the others; but mitral regurgitation, mitral stenosis, double mitral disease, aortic and mitral disease combined, and myocardial degeneration may all exhibit high tension. It seemed as though the majority of those with very high tension were not those with good compensation, but with ruptured compensation. For instance, a man who died in the hospital on the twenty-first day after entrance, sixty-eight years old, had arteriosclerosis, myocarditis and a tension of 198. A malignant endocarditis with trouble in both aortic and mitral valves died on the nineteenth day in the hospital, with a tension of 155. That was a very acute case, probably due to gonorrhea.

Cases with anarsaca and hydrothorax and irregular and intermittent heart with mitral disease had tensions of 215 and 232 and of pure myocarditis up to 235.

Now whether we can get any useful deductions as to treatment from these astonishing conditions in the systemic arteries in ruptured compensation remains to be seen. It would seem as if we see here the explanation of the clinical experience that digitalis often will not work in such cases until you have given a purge, preferably a mercurial, and unloaded the capillaries so the left heart when it is encouraged to work harder does not as you might say press against a stone wall. In one case with high tension we substituted nitroglycerine for digitalis, but the tension did not lower with that. Finally we resorted to purging and digitalis and the tension came down somewhat and the man improved. A similar experience has been reported at the Johns Hopkins Hospital.

Only one other point about the tension with regard to detecting a perforation in typhoid very early. It has been said that the highest typhoid tension is somewhere about 140 and usually much below that. I had a woman with typhoid on the fifth day, without any casts in her urine, with a tension of 152. Another woman on the ninth day, who probably had chronic interstitial nephritis, had a tension of 162. One man had a tension of 162 and another in the third week 165;

so that it would seem that if you are going to be guided by the sphygmomanometer with regard to advising a laparotomy for perforation you must keep track of the individual patient from the beginning of treatment.

Dr. R. C. Cabot: I think as Dr. Vickery does, that we have not proved in any way yet that this instrument is of use in giving us any therapeutic indications. I think we now know that *if* our fingers are of any use to tell us about pulse tension this instrument is of more use. If it was ever of any use to put the fingers on the pulse to find out the tension we have now a much better way of doing the same thing. Another use of the instrument is brought out by the third case of aneurism to which Dr. Vickery referred; comparing digitally both pulses I was convinced that the tension in one was twice as high as in the other. The blood pressure measure showed they were the same. The reason I think was that given by Dr. Vickery, namely, that on one side the artery was so much smaller than on the other. In a small artery I think most of us would be deceived again and again as regards tension when contrasting it with that in a larger artery. If it is of use to know tension this instrument is of value. What I doubt is whether it is of use to know tension, except possibly in kidney disease.

In regard to the cardiac cases which Dr. Vickery has reported I think what was recorded was the blood pressure during the strongest of the varying heart beats. If any wave comes through the cuff to the wrist we say the artery is not obliterated. The strength of different waves in mitral disease is very different, and when we say the blood pressure is 150 what we mean I suppose is that the strongest blood wave in a group occurring within a few seconds brings the blood pressure up to 150. The other waves may be so weak that the average tension is very low and yet our measurements recording only the crest of the highest waves will give a pressure which is very astonishing and quite misleading in view of the manifest phenomena of poor compensation.

TWO CASES OF CRURAL MONOPLEGIA OF TRAUMATIC ORIGIN.

BY J. J. PUTNAM, M.D., BOSTON.

The first patient was an athletic young man, an accomplished boxer, who, about one month ago, received a number of blows about his head during a sparring-match. He does not think there was any particular blow which caused the mischief which resulted, but he was struck a number of times and became very much exhausted from the contest, the more so that he was out of condition. He finally went to his corner in a sort of collapse, and became nearly if not quite unconscious. His friends then took him to the relief station and the next day brought him to this hospital, where he came under the care of Drs. Warren and Greenough. When he appeared at the hospital he did not remember much of anything that occurred the previous evening, but as soon as he improved he recalled some things which he had forgotten which would indicate that the unconsciousness was not so deep as it had appeared. When he came to the hospital his left foot was entirely limp at the ankle, and could not be extended although he could flex it somewhat. Besides that there seemed to be practically nothing the matter except that he was very nervous. It was found that his knee-jerk was exaggerated on the right side, and he had at least a suspicion of an ankle-clonus and also a Babinski reflex which, however, was not obtained every time. Sensibility was not materially affected. He was feeling very uncomfortable about his head and very nervous. After he had been in the hospital some days a plaster was put on to keep the foot in a proper position and he went out. He does not know just how soon his foot began to improve, but certainly within forty-eight hours. About a week later he came to the out-patient department, and then the motions of the foot were almost perfectly good.

The question arises as to whether he had a lesion in the head and what the lesion was. It seemed hardly possible that he could have had a hemorrhage into the substance of the brain or involving the cortex to any great degree without more symptoms, and at the same time the diagnosis of purely hysterical trouble appeared hardly justifiable. He now tells us that he has discovered another symptom, namely, that he bumps into people on the right side, and on examination of his field of vision we find that he has hemianopsia, although not so complete but that he can see vaguely in the right half of the field, especially of the right eye, and that, I think, makes it clear that these symptoms were, so to speak, genuine, and that he did have an affection of the head which resulted from the accident. Then the question arises whether such lesions are not a good deal more common than we suppose, and whether they are as limited as the limited extent of the paralysis would indicate. The lesion or lesions must I believe have gone back as far as the occipital lobe and as far forward as the neighborhood of the Rolandic fissure, and in fact there are perhaps multiple capillary hemorrhages present. He is now practically well except for his hemianopsia, and inasmuch as he sees, although not very distinctly, in the right half of his field, it is to be hoped that the trouble will disappear.

His native tongue is German, and he says he spoke English fluently before the accident but that since then he has not been able to speak so well.

The second patient is a law student who last October was coaching a foot-ball team of young men and was tackling with a number at once when he received a blow on his head from somebody's knee. He came to the ground at the moment and felt his leg limp, but only for a brief time, so that he got up and went on with the game. Two weeks later he was playing basket-ball and was again struck on the head and again felt the leg limp and tingling. After that he received in wrestling and on other occasions blows about the head, and on several such occasions this tingling and weakness came in the leg. In November, after being fatigued through one of these contests, he felt of a sudden his leg getting rigid and a sensation passing up the leg to the arm and the face. He was able to ask his friends to do certain things for him, but at the end of about two minutes he lost consciousness and was unconscious twenty minutes. The same thing happened again about seven weeks ago. Now he has a nearly complete foot similar to that which the last patient had when he first came to the hospital. There is no other sign of cerebral injury, but the paralysis is becoming rather more intense and perhaps more extensive. The knee-jerk is exaggerated and there is a distinct ankle-clonus.

PERINEAL PROSTATECTOMY.

BY F. B. HARRINGTON, M.D., BOSTON.

I SHOW a case of perineal prostatectomy done six weeks ago. It is a conservative prostatectomy in which the ejaculatory ducts have been saved. You will see a small curved scar in the perineum. Two weeks after operation the perineal tube was taken out of the bladder and he then could pass his urine voluntarily and has ever since. He has still a little leakage by the perineum and about an ounce of residual urine. The urine is in good condition. He had a good deal of cystitis when he came in and had spent all his money and time in trying to get relief. He is now a happy man.

Young of Baltimore described this operation in June and his paper is published in the *Journal of the American Medical Association* in October. It is one of the clearest and best descriptions of an operation I ever saw. It does not mean an operation which is to do away with the Bottini. I think the youngest man here can remember when physicians and surgeons practiced and taught that a hernia which was well held by a truss and which gave no trouble should be let alone and operation only done when a truss could not be worn. Now if a patient is in good health we recommend operation as a rule even if the hernia gives little or no trouble. I have always believed that if we ever got a good operation for the prostate we should recommend an operation as soon as a man came to catheter life, not waiting until they came with diseased kidneys and bladders. Such an operation I believe this of Young to be.

Young had operated in June on fifteen men. He said he believed in every one the sexual power had been retained. He was quite certain there had been no injury to the vas or to the seminal vesicles and he does this in this way: An inverted V is made in the perineum down to the urethra having separated it so that the rectum drops away from the prostate; this is done very easily and you have a clear space to operate in. Through the membranous urethra this tractor is put into the bladder and opened. It takes hold on both the lateral lobes and you have a powerful instrument with which you can drag down the prostate getting it well into the perineum. Having brought the prostate into view you make incisions on either side of the urethra. You are guided by this retractor. You make a direct incision along the side of the urethra for a considerable distance down, perhaps one-fourth to one-half inch. You dissect with a blunt dissector the prostate on either side away from the sheath. After you get down towards the bladder you put your finger in. You feel the wings of the instrument. You can very easily go in and shell out the prostate without injuring the urethra which I cannot do by the Alexander operation. You also do not injure the ejaculatory ducts. Dr. Young has rightly designated it conservative prostatectomy. I believe it has a great future.

FINNEY'S OPERATION FOR PYLORIC STENOSIS: SUDDEN DEATH IN STATUS LYMPHATICUS.

BY JAMES G. MUMFORD, M.D., BOSTON.

I PROPOSE to report two cases.

The first case is one of Finney's operation for pyloric stenosis and I am reporting it because I find that it is the first one to have been done in this hospital.

CASE I. The patient was a woman of forty-six, who had suffered all her life from "indigestion." Ten weeks ago she began to have pain about an hour after taking food; the pain was relieved by vomiting. In the course of a few weeks nausea and vomiting increased until at the end of a month she is stated to have vomited all food taken. The pain was in the epigastrium.

She was nourished by enemeta for a time and finally was sent into my wards by her physician, Dr. Winslow, for operation. I found her extremely emaciated and with the symptoms as described. The abdomen was boat shaped, the walls flexed. There was slight gastric dilatation but the gastrectasis was less than one might have expected. The stomach capacity was about fifty-six ounces, and the greater curvature descended only to the umbilicus. There was no ptosis. Free HCl was present, but no lactic acid.

As in so many of these cases, cancer of the pylorus was strongly suspected though no tumor or induration could be determined.

On Jan. 1, I cut down upon the stomach and found it corresponding in size to what we had made out previously. There were adhesions between the stomach, transverse colon and duodenum; the duodenum especially was adherent to the stomach, causing a sharp kink at the pylorus which was thickened by the scar of what was probably an old ulcer. The finger and thumb could not meet through the contracted opening.

Finney's operation of gastroduodenostomy through the pylorus was done. I think it unnecessary to describe this method of operating, as it has been familiar to all readers of medical journals. Suffice it to say that a very free opening was made between the stomach and duodenum, an opening through which one could easily pass three fingers.

The woman recovered promptly; there was little vomiting. On the second day she was taking liquid nourishment and on the seventh day she was eating hearty house diet. She has gained fifteen pounds since the operation and is now perfectly well, reporting that never in her life before has she known what it was to be so free from indigestion. She promised to report here to-night, but I regret to say she has not come in to show herself.

CASE II. This case has two points of interest connected with it. The patient was a young man of twenty-one, with a tumor of the lower jaw which had existed two years. A few days ago I cut down upon it and excised it with about five inches of the jaw, including the symphysis. A few glands in the anterior cervical triangle were removed. The tumor proved to be a round cell sarcoma.

The first point of interest in the case is, that as a preliminary to the operation, I cut down upon and controlled the common carotid on the right side by the use of this little control clamp, devised by Dr. Crile of Cleveland. As you see it is a device resembling a small clothes pin. While putting it on I explained its uses to the students present and warned them that it must be applied with care so as not to

bruise the intima of the vessel and so run the risk of thrombosis and embolism.

The use of the clamp gave me an almost bloodless field to work in, very satisfactory in operations on the face. I have made a practice for two or three years of controling the carotid in these operations and have never met with an accident. The operation in this case was brought to a successful termination and the patient left the table in good condition, with a pulse of 90.

About half an hour afterwards he suddenly died, and naturally my first thought was that he had died of embolism.

Dr. Oscar Richardson made the autopsy and will give you a statement in a few minutes. He found a persistent enlarged thymus gland, characteristic of the status lymphaticus, and with your permission I will read the following paragraph on this subject, written by Dr. Osler:

"What has directed the attention of writers more particularly to this condition is the frequency with which it has been found in cases of unexpected death from very trifling and inadequate causes. A good deal of attention was directed to the subject by the death of the son of Professor Langerhans, of Berlin, immediately after the preventive inoculation with the antitoxin of diphtheria. In another child death occurred under similar circumstances. The condition has also been met with in a number of cases of sudden death under anesthetics, and I know of one instance during anesthesia for adenoid growths. The whole question is one which deserves the most careful study. The anatomical features appear fairly well defined. The clinical features are by no means so clear, nor is it at all certain in what way sudden death is caused in these cases. The students of the question have, however, in the past few years brought forward evidence enough to show that the subjects of this lymphatic constitution have a diminished vital resistance, and are especially prone to fatal collapse under ordinarily very inadequate exciting causes."

Dr. Oscar Richardson: This case which Dr. Mumford reports belongs to a large group of cases which have been recorded from time to time by many different observers. They have all been associated with sudden death without apparent sufficient cause and with certain definite anatomical conditions at autopsy. These conditions are a more or less hypertrophied thymus gland associated with more or less hyperplasia of the lymphatic glands and hypoplasia of the aorta. The hypertrophy of the thymus is the most constant factor in these cases. The condition is known as status lymphaticus or constitutio lymphatica.

On examination of Dr. Mumford's case the body was found to be that of a young man of twenty years of age, fairly well developed and nourished and presenting an operation wound in the region of the right side of the face and neck through which a portion of the jaw had been removed. On section, no evidence of thrombosis was found; the brain was not remarkable and the thoracic and abdominal viscera showed nothing worthy of note, except for the presence of hemorrhagic edema of the lungs, a persistent hypertrophied thymus, a very small aorta and hyperplastic mesenteric and cervical lymphatic glands. These anatomical conditions clearly classify the case as one of constitutio lymphatica.

Various theories have been propounded as to how death is brought about in these cases of constitutio lymphatica but they are generally inadequate. The supposition, however, in regard to certain cases which occur among young children, that death is due to pressure on the trachea and nerves seems reasonable. Some experimental work has been done in regard to the poisonous nature of extracts of the thymus but without solving the question. In a recent paper Blumer calls attention to an hypothesis that the condition known as status lymphaticus is probably associated with, if not due to, a condition of intermittent lymphotoxemia. It is interesting to note in the report of a case of dyspnea in an eight weeks old child, quoted by Blake in the Annals of Surgery, that an operation was performed in which the cervical portion of the thymus was removed and the lower half pulled up and anchored high with stitches. The dyspnea ceased and the child made an uneventful recovery.

ACTION OF RESORCIN.[1]

BY F. C. CLARK, M.D., PROVIDENCE, R. I.

In all the literature thus far published, relative to resorcin, there has been nothing said in regard to its action whether as an internal or an external remedy. Unless an attempt is made in this direction there can be no headway secured in the employment of any new remedy, and medicine will sink into mere empiricism.

I propose to make a few remarks which I hope may be of some service in this connection. Although my experience has been small compared to that of many other physicians, in the use of this remedy, I trust that my efforts may not be for that reason less respected.

It is as an external remedy I shall speak of resorcin, and of its use in eczema. From this I shall deduce a few conclusions which will lead, I trust, to the further investigations of others in wider fields.

Although the number of remedies for eczema rubrum is legion, there has yet been found no specific on which to depend for any absolute cure. However, there are certain remedies upon which we can rely to ameliorate if not shorten the disease, by allaying certain disagreeable features as they occur. In resorcin, I think, may be found a valuable remedy. But whether it cuts the disease short is a matter of opinion.

In the inflammatory stage of eczema accompanied by intolerable itching, burning or smarting, or all three, resorcin is, perhaps, almost infallible. Its action here is anodyne. It almost

[1] So named by Hlasiwetz and Barth (1862), its discoverers, who first obtained it from certain resins. For best accounts of this drug see Squibbs' Ephemeris in course (1888, fol.).

immediately after application relieves either of these three conditions, and the patient is made at once comfortable. It is surprising what benefit may be derived from a comparatively small amount of the drug. Its superiority to diachylon ointment (ung. diachyli) and the various other preparations is most marked. Hence its chief action is to reduce inflammation and soothe irritation. This result has followed so many times in my hands, that I cannot think it is entirely accidental or coincidental.

Thus noting its action, we come to its application. For this purpose two methods may be employed, — in solution or as an ointment. For the first dissolve 20 gr. of resorcin in an ounce of water, thus making a 4% solution. A stronger solution may be employed if found necessary; but this strength has answered thus far in my hands very well.

The application may be made on strips of linen, or lint cut to the desired size saturated with the solution and then laid over the inflamed surface. The slightest covering over this should be laid, just to keep the application in place. A gauze bandage may be sparingly applied when possible, as over a limb or around the neck or body, etc. It is unnecessary, perhaps, to say, that strict cleanliness should be observed in every application. The solution may be used indefinitely; that is until the disease is under control, or harm follows.

I prefer, however, except in some cases, the use of a resorcin ointment. To every ounce of zinc ointment (ung. zinci oxidi benzoati) 20 gr. of resorcin are added. Instead of the zinc ointment cold cream may be used (ung. aquæ rosæ). Sometimes from 5 to 10 gr. of salicylic acid may be added to the resorcin ointment. A good prescription is this:

℞. Resorcin ℈ij
Oxidi salicylici gr. x
Unguenti Zinci oxidi benzoati ad ℥ij

Apply every night or oftener as the condition requires. In preparing this prescription the resorcin and salicylic acid should be dissolved in alcohol to assure perfect union, then the zinc ointment is warmed over a slow fire and the alcoholic solution of the two added, or, if powdered, rubbed together and sifted in; the whole cooled slowly and stirred until sufficiently cold. By this method a more fluid and intimate mixture may be obtained.

The salicylic acid acts, probably, as a mild antiseptic. Cold cream and resorcin answer very well together; but I think greater healing properties may be ascribed to the zinc ointment in combination with the above remedy. Olive oil is also a good menstruum; so is linseed oil or lard, especially when large surfaces are to be treated, having here the advantage of cheapness.

Constitutional treatment, however, is not to be neglected in case it should be required; for resorcin is not a specific. Whether it only possesses palliative powers or is also remedial, in the sense of cutting short the disease, I am unable to say. At least the patient is rendered more comfortable during the inflammatory and irritable stages of the eczema. It is a good remedy, but must not be overrated, which has been the fate of many new remedies when based on empiricism or enterprising advertisements.

The stains on linen and clothing produced by resorcin can be removed with strong soap-suds. Smarting may be remedied by cold cream or vaseline, should it occur.

From the above remarks the following conclusions may, I think, not unreasonably be drawn; that these and similar preparations of resorcin may be employed in the treatment of all inflammatory surfaces, such as erysipelas, erythema, herpes zoster, etc. Of course, the proportions of resorcin and salicylic acid must be varied to suit the case. Even in small quantities salicylic acid is liable to irritate delicate skins. The smarting, however, is usually but slight and of short duration.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

PROTOZOA IN A CASE OF ALEPPO BOIL.[1]

A CASE of Aleppo boil in a female child of nine, born in Armenia, that presented itself at the Massachusetts General Hospital in July, 1903, afforded Dr. Wright the opportunity for an investigation, the results of which are most important as regards the pathology of this disease. The lesion, which occurred in the skin of the left cheek near the mouth, was excised and from it smear preparations were made and stained in various ways. In these preparations peculiar bodies were seen. They were best demonstrated in preparations fixed in pure methyl alcohol, and afterwards stained with Romanowsky staining fluid for blood films. They were generally round, sharply defined, and exhibited an unstained, or white, central portion, while a large part of their peripheral portions was stained blue. In each of these bodies a larger and a smaller lilac-colored mass could be shown. These bodies were present in very large numbers in the smears, often occurring in aggregations associated with a large nucleus. Microscopic examinations of sections of the material which had been fixed in Zenker's fluid showed a very extensive infiltration of the corium with cells, a type of plasma cells, various kinds of lymphoid cells, and large cells with large nuclei and a considerable amount of cytoplasm in which there were many micro-organisms. Wright regards them as proliferated endothelial cells. The micro-organisms are almost exclusively in these cells, many containing twenty or more. On account of the constant morphology and structure of these bodies, their great numbers, their position in cells, and the different staining of their parts, the belief that they are micro-

[1] By J. H. Wright, M.D. Jour. Med. Research, Nov., 1903. Jour. Cut. Dis., Jan., 1904.

organisms and are the cause of the lesion is justified, and it is evident that they must belong among the protozoa. The writer is, however, unable to give a definite opinion as to their position in classification. He proposes the generic and specific names Helcosoma tropicum.

No pathogenic effect was noted from the inoculation of a rabbit with a part of the material subcutaneously.

Aleppo boil, as is well known, is endemic only in tropical and sub-tropical countries, where in certain localities a large portion of all the inhabitants are affected. It has generally been believed to be of an infectious nature, and capable of transmission from one person to another by inoculation; and there is evidence that it may be carried by mosquitoes and other insects. Many have tried to find the infectious agent, but with no very positive results. Cunningham, in 1885, described a large number of peculiar bodies in a specimen that had been put in alcohol immediately after its removal from Delhi. The writer considers that these bodies were not proved to be of a parasitic nature, although it seems probable that he did see the large cells described above among the various bodies that he regards as parasites.

Riehl, in 1886, described, as the result of his examination of a case, many large epithelioid cells among the infiltrating cells of the lesion which contained in their cytoplasm many bodies which he regarded as micrococci with capsules, frequently more than twenty in a cell. Wright states that in thicker sections the protozoic micro-organisms give to the large cells in which they are contained the appearance of basic staining granules about the size of pus-cocci, each surrounded by a clear space. He does not doubt that the appearances described by Riehl as micrococci with capsules and contained within the cells, represented the protozoa as they appeared under these conditions.

ARSENICAL DERMATOSES.[2]

Rille doubts the well accepted view that herpes zoster may follow arsenical treatment, and also, with more ground, the view that arsenic may give rise to alopecia areata. With regard to the keratoses which follow the use of arsenic, he has never seen them occur in cases of cutaneous affections such as lichen planus, even where large doses of the drug were administered. On the contrary, he cites the case of a young girl who was affected with a general pruritus and lympho-sarcoma. After treatment with Asiatic pills, an intense keratosis of the hands appeared. Having failed to observe this keratosis in cutaneous patients who were affected with psoriasis and lichen planus and treated by arsenic, he is convinced that it is very rare in subjects affected with cutaneous disease, while it is more common in those treated for other affections. It would appear that the writer's experience must have, by simple chance, differed from that of most dermatologists, as the association of zoster and keratosis of the palms of the hands with ingestion of arsenic for cutaneous, as well as for other diseases, must be regarded as an absolutely settled point.

[2] Wien. klin. Woch., 1902. Rille.

DESQUAMATION OF THE HANDS IN PATCHES, OCCURRING IN SUMMER.[3]

This paper, which is from the Dermatological Clinic of Bordeaux, deals with two forms of estival desquamation of the hands which recur each year.

The first, and more common form, is seen exclusively in warm weather, from June to September. A great many people, of all ages and both sexes, are affected, and the course is the same in all. It has no connection with an habitual hyperidrosis. The lesions are situated on the palms of the hands, and on the palmar aspect of the fingers, seldom on the lateral surfaces, and never on the dorsal surfaces. They appear as small white spots of a rounded form, from the size of a pin's head to that of a large pea. These spots are formed by a layer of exfoliated epidermis of great thinness. They are never associated with any exudation. Beneath the scales the epidermis is slightly redder than normally and absolutely dry. The course of these lesions is very short, lasting scarcely twenty-four to forty-eight hours. They recur, however, as rapidly as they disappear, and the people affected are not free from them during the whole period of summer. They disappear with the first frost, and are never accompanied by any painful symptoms. Of these cases a large number were observed, one of which, that of a student of medicine, is described in detail.

The second form is much less common than the preceding, and the writer has been able to collect but three cases. The lesions are much more extensive, deeper, and more lasting than those just described. Manual labor does not seem to be a factor in their causation. This form also appears only in the warm season, but when once affected, the patient is invariably visited each year. Here, too, the palms of the hands and the palmar aspects of the fingers are the parts affected. The hands are dry, without hyperidrosis. These scaling patches vary in size from a bean to that of a franc piece. They keep on enlarging for two or three weeks, when the epidermis breaks and exfoliates. There is never any redness, infiltration, or induration of the skin, nor are there any subjective sensations except, perhaps, a slight burning. The evolution of a single lesion varies from twenty days to a month. Frequently new lesions appear immediately over the old ones.

In discussing these cases, the writer speaks of the analogy that they bear to dysidrosis, especially to the slight form of this disease which is common in hot weather as small vesicles on the sides of the fingers, which are followed by appearances not unlike those here described; but in these cases there is no preceding vesicle.

The most effective treatment that was tried

[3] Annal de Derm. et de Syph. April, 1903. A. Sarayon.

seemed to be wrapping the hands in compresses wet with a one per cent watery solution of resorcin, and covering with wax paper. If this application is continued through the night, desquamation is furthered and the keratinization is modified.

GRANULOSIS RUBRA NASI (JADASSOHN).[4]

This peculiar disease was first described by Jadassohn in 1901. It is characterized by a local erythematous area on the tip of the nose, covered with small macules and papules, with an oily seborrhea, and also a hyperidrosis of the hands.

Macleod's case concerned a delicate boy of six, who had always been nervous, but free from any especial disease. The lesion on the nose began at the age of six months, when his mother noticed that the nose was always red and covered with perspiration, and also that his hands were moist. The trouble was said to be more pronounced in summer than in winter.

When seen there was a hyperemic patch extending from the tip of the nose up to the bridge, and spreading laterally as far as the middle of the alæ. The patch was symmetrical, not definitely bounded, and covered with punctate beads of perspiration. The most prominent feature of the patch was the presence of a large number of small discrete macules and papules, brownish red in color, varying in size from a pin's point to a pin's head. There was hardly any infiltration, but the papules gave it a granular feeling, which had suggested the name granulosis. There was some passive congestion of the hands, which were moist from hyperidrosis.

Histologically all that was seen was a slight parakeratosis around the sweat pores, but the piece excised was of limited size. Other observers have found the chief pathological changes in the corium, with a dilatation of the blood capillaries and a perivascular infiltration of leucocytes, connective tissue cells, mast cells, and plasma cells. The lumen of the sweat coils was widened and contained a granular débris, while the walls of the coils were thickened. There was little change in the sweat ducts. Jadassohn thought from the histology that it was a chronic inflammation originating in the vessels around the sweat coils. Harrmann was unable to find these changes around the sweat apparatus. Macleod considers that the two cases of Pringle's, which were described as hydrocystoma in 1894, were examples of this affection.

The treatment that was adopted in this case consisted of various pastes containing salicylic acid, and general hygiene. No distinct improvement could be detected at the end of two months. Macleod believes that this is a distinct affection, which is peculiar to young subjects, disappears spontaneously when adult life is reached, begins early in life and affects weakly children who are apt to have a weak circulation and hyperidrosis of the hands and feet. The course of the disease is very chronic, and it is very rebellious to treatment. Macleod thinks that it is probably a simple inflammatory disturbance, secondary to hyperidrosis, and associated with local vasomotor derangement. He considers that it has a close analogy to prickly heat.

[4] J. M. Macleod. British Journal of Derm., June, 1903.

TREATMENT OF LEPROSY.[5]

Brault treated in the hospital at Mustapha thirteen lepers from January, 1902, to October, 1903. Most of the cases represented mixed forms. In one case, it was almost entirely of the tubercular form, and in another entirely of the anesthetic, or nerve, type. On account of this large number of cases, to which were added several others seen outside the hospital, a good opportunity was afforded to try different methods of treatment. Anti-diphtheritic serum was tried in two cases. They received in all six injections, one every second day. An intense fever was excited, and the method had to be abandoned, without any appreciable improvement in their condition.

Chaulmoogra oil, given internally or by injections, is a method of which the advantages did not seem to compensate for its drawbacks. A short time before a patient had died of Bright's disease, who had taken very large doses of this drug, up to 250 drops a day. The author also speaks of a patient in whom the remedy had been used as high as 300 drops a day, who also presented signs of nephritis.

Unna's treatment was tried in the case of a patient who had got to the last stages of the disease and was already cachectic, and who had large ulcerations over the thighs. In this case the ulcerations were healed under ichthyol internally and external applications of the same drug; but the author calls attention to the fact that hygienic measures which were employed at the same time probably had much influence. Later, however, the patient began to lose ground, in spite of a continuance of the treatment. Several cases were treated by injections of calomel and of biniodide, with amelioration in almost all cases. Injections of sublimate proved rather unsatisfactory. On the whole, the writer considers that treatment by mercury is better borne than most of the other general methods. One advantage of this method, he thinks, is its moral effect, in that the patients do not suspect from it the nature of their trouble and are spared extreme mental depression. Various topical applications were tried, such as collodion, with the addition of the biniodide or sublimate, upon tubercles and non-ulcerated lesions, but with only meagre success; and airol and ichthyol proved of distinct value.

In conclusion, the writer considers it indicated above all to ameliorate the life of the lepers by a thorough use of all the measures that are afforded by hygiene. With regard to therapeutics, properly speaking, the writer is rather more reserved because there is so often spontaneous improvement in this disease and because of the danger of injuring the patient by powerful drugs.

[5] Annale de Derm. et Syph., Nov., 1903.

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Stated meeting, Feb. 2, 1904.

Dr. Joseph Fraenkel, President *pro tem.*, in the chair.

A CASE OF HUNTINGTON'S CHOREA (DEGENERATIVE CHOREA) WITH LIMITATION OF THE MOVEMENTS OF THE FACE AND EXTREMITIES OF THE LEFT SIDE.

Presented by Dr. J. Ramsay Hunt: The patient was an Hungarian, thirty-three years old, the youngest of seven children. He had been a resident of the United States for six years. No history of choreiform movements in his antecedents could be elicited. From the patient's sister it was learned that he was extremely dull, even as a child, and lacked interest in his studies. For the past three years he had twitching movements of the left upper extremity, confined chiefly to the fingers and wrist of the left hand. Similar muscle-twitching was also present in the left lower extremity, consisting of slight flexion movements in the ankles and toes. Occasionally, the left quadriceps extensor contracted, elevating the patella.

The face was the seat of irregular grimaces and twitchings, and the latter were also present in the tongue, interfering at times with speech. These movements were at no time violent, and seemed to be increased by voluntary movements of the parts. The left upper extremity was complained of by the patient as feeling cold and heavy, and interfering with finer movements of the hand, such as eating.

Mentally, the patient was dull. He was cranky and irritable at times, careless in his dress, and was unable to obtain any employment. At times, he had mild acute mental symptoms and apparent hallucinations. He had complained of frontal headaches at intervals since the onset of the trouble. Otherwise, the examination proved negative. Muscular power was unimpaired; there was no ataxia; no sensory disturbances. The pupils and all reflexes were normal. He had never had a convulsion.

Dr. Hunt said that the character of the twitchings, although slight and limited to the left side, resembled those observed in Huntington's chorea. The constancy of the symptoms, the pronounced and progressive character of the mental changes even in the absence of heredity pointed very strongly to a degenerative form of chorea. An initial psychosis with secondary motor manifestations would deserve consideration in the differential diagnosis.

A CASE OF MULTIPLE CEREBELLAR TUMORS.

Specimen shown by Dr. B. Sachs: The patient was a boy, seventeen years old, a native of Russia, who was admitted to Mount Sinai Hospital on Nov. 8, 1903. He complained of vague symptoms, and was discharged after a few weeks with the diagnosis of neurasthenia.

He was re-admitted to the hospital on Dec. 19, and stated that for eight weeks previous to Nov. 8 he had suffered a great deal from occipital headache, daily vomiting, difficulty in speech and unsteady gait, associated with dizziness.

When Dr. Sachs first saw the patient, on Dec. 28, he found, in addition to the subjective symptoms above mentioned a very distinct scanning speech similar to that of multiple sclerosis. There were marked ataxic movements of the left upper extremity, a distinct titubating walk, and double optic neuritis. A second examination on Jan. 3, 1904, showed an increase in the ataxic tremor of the left upper extremity, which was also somewhat weaker than the right. The knee-jerks were present, but not exaggerated. There was slight ataxia of the left lower extremity; a marked plantar reflex; no Babinski. The scrotal reflex on the left side was increased; also the abdominal reflex on that side. There was no difference in the facial innervation, but some weakness of the left external rectus. On Jan. 8, Dr. Gruening reported that the optic neuritis was progressing, and that there were hemorrhages in the fundi. Hearing was normal.

On Jan. 15 the patient's skull was trephined for the purpose of relieving pressure and preventing the development of total blindness. The patient died from shock a few hours after the operation.

CEREBRO-SPINAL LUES (SYRINGOMYELIA SYMPTOM COMPLEX).

Presented by Dr. Isador Abrahamson: The patient was a male; thirty-five years old; single; a peddler, and a native of Roumania. When he was eleven years old, after a fright, he became blind in the right eye and the vision of the left eye became impaired. Some improvement in sight occurred within two months.

When he was sixteen years old he contracted a chancre, with the usual secondary symptoms. He was treated for this disease for one year with both external and internal remedies. He was moderately addicted to the use of alcoholic stimulants, and smoked excessively.

This case, which was reported in detail by Dr. Abrahamson, was probably one of cerebro-spinal lues, presenting the syringomyelic symptom complex, or else it was a case of syringomyelia, plus lues, or possibly of luetic origin. Such cases, the speaker thought, were rather uncommon, and were naturally of considerable clinical importance.

Dr. Sachs, in discussing this case, said he had seen some cases which, while luetic, presented the clinical aspect of syringomyelia. He regarded these cases as examples of cerebrospinal lues, not luetic syringomyelia.

FLACCID LUETIC HEMIPLEGIA WITH ATROPHIES.

Presented by Dr. Abrahamson: The patient was a male; twenty-six years old; married; a Russian peddler. He was an excessive smoker and used alcoholic stimulants in moderation. He had lues four years ago. Ten years ago he had an attack of parasitic alopecia, and six years ago he sustained a severe fall. This resulted in a Colles' fracture and he was said to have been unconscious for a long time.

About two months ago he was obliged to remain in bed for three weeks on account of stiffness of the neck, violent neuralgic occipital pains, and headaches, chiefly nocturnal. During the third week of this illness he began to suffer severe right-sided headaches, with vertigo.

Three weeks ago, while in a café, he felt dizzy and staggered as though drunk. He fell to the floor and found that the right side of his body was numb and paralyzed. Speech was also lost. This condition lasted about five minutes, when he apparently again felt normal. A short time afterwards he had a second attack lasting five or six minutes, and in the course of two hours he had four additional similar attacks. From the sixth attack, however, he failed to recover; speech was lost for four days and the paralysis still persisted.

At the present time there was paralysis of the lower two thirds of the right face and of the right upper and lower extremities. There was dropped wrist and

foot of the right side, flaccidity of the right hand and forearm; also the leg and foot. Decided wasting in right posterior forearm musculature; also, but to a lesser degree, in the right leg. The electrical reactions in the posterior forearm were much diminished; myotatic irritability diminished; sensibility intact; heart normal.

Dr. Abrahamson said that in view of the electrical changes, the marked wasting, flaccidity and altered myotatic irritability, all occurring within three weeks after the onset of the attack, he felt justified in calling the case a flaccid hemiplegia with atrophy.

JACKSONIAN EPILEPSY OF LUETIC ORIGIN; IMPROVEMENT UNDER ANTI-LUETIC TREATMENT.

Presented by Dr. Abrahamson: The patient was a male; thirty-nine years old; a shoemaker by occupation and a native of Hungary. He was married and the father of eight children, of whom six were living. His first wife had three miscarriages occurring about the third or fourth month. The patient had typhoid fever in childhood. He was a heavy smoker and a moderate drinker. He positively denied venereal infection.

His present illness dated back to Dec. 15, 1903, when he began to suffer from frequent attacks which were ushered in with a feeling of numbness in the right hand, followed by a drawing in of the thumb, flexion of the fingers and semi-pronation of the hand. The numb sensation spread to the shoulder, then down to the hip and feet. He complained of weakness of the leg and had to sit down to keep from falling. Speech was also temporarily lost. Each of these attacks, which sometimes occurred at hourly intervals, lasted about fifteen minutes, and were followed by some weakness of the right side and slight dizziness. He also complained of left-sided headaches and slight nausea and epigastric distress at the end of the attack. There was also rolling of the eyes during the attack, and rolling of the tongue upon attempting to speak. No frothing; no biting of the tongue; no diplopia. Micturition and defecation were not affected. There was no loss of consciousness.

An examination showed that the right pupil was larger than the left. The pupillary reactions and ocular movements were normal. There was weakness of the entire right half of the body, including the lower two thirds of the face. There was some exaggeration of the deep reflexes on the right side. The special senses were normal. The eyes showed a beginning papillitis.

The patient was put upon inunctions of mercury and large doses of potassium iodide. At first, the weakness on the right side increased, and a right hemianesthesia of somewhat irregular distribution developed. Subsequently, he improved rapidly, and at the present time he had entirely lost his attacks, the right-sided weakness was much less, and only scattered areas of diminished sensibility were present over the right side.

ARTERIO-SCLEROSIS OF SPINAL CORD, WITH HEMORRHAGE.

By Drs. Joseph Collins and Edwin G. Zabriskie: M. H., a fireman, with no particular antecedents, noticed toward the end of 1902 fatigue on exertion, jerking sensations, occasional sharp pains in lower extremities, and a sensation of heaviness, accompanied by difficulty in holding his urine. These symptoms steadily progressed, until he awoke one morning and found himself unable to stand or walk. There was also incontinence of the bowels and bladder.

On examination, it was found that he was unable to flex his thighs slowly, and there was slight atrophy of the left anterior and inner thigh muscles. The reflexes were absent; Babinski's phenomenon present. Power in the upper extremities was fair, but he was easily fatigued. There was slight quantitative diminution of sensation in both lower extremities, and a zone of hyperesthesia as wide as the hand above the trochanters. There was slow speech and mental reflex. Also a moderate degree of general arterio-sclerosis. Death supervened gradually of cardiac weakness.

Autopsy. — Macroscopically, there was arterio-fibrosis everywhere, only slightly marked in the brain and bulb, but very marked throughout the cord. The vessels were distended with blood, and there was some extravasation into the perivascular spaces. The changes consisted in thickening of the media and propria, with loss of muscular tissue. A hemorrhage was found in the ninth dorsal segment of the cord, involving the right posterior and left anterior horns. There was sclerosis of the glia around the margin of the cord and in the lateral pyramidal tracts. Secondary degenerations were found in marginal portions of the right column of Goll, Gowers and the direct cerebellar tracts on both sides above the lesion, and the crossed pyramidal tracts, and columns of Turk below the lesion. There was no definite degeneration of Schultze's tract or the other descending tracts of the posterior columns, excepting in the lower lumbar region, where a small area in the triangle of Gombault and Phillippe was apparent.

Dr. Zabriskie said it was interesting, in view of the difference of opinion as to the origin of the fibres in the descending tracts of the posterior columns, to note that in this case, although the right posterior horn was almost completely destroyed, the comma tract and areas of Flechsig and Phillippe-Gombault were not involved; this would seem to point to the exogenous origin of these fibres.

(To be continued.)

Recent Literature.

International Clinic. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, etc. By leading members of the Medical Profession throughout the World. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, with the collaboration of twelve other physicians. Vols. III and IV. Thirteenth series. Philadelphia: J. B. Lippincott Company. 1904.

Volume III of the now well known International Clinics contains lectures on the gall bladder and gall ducts, on the treatment of certain common and important diseases, various discussions on topics in general medicine, and several surgical papers of importance.

Among other lectures on a great variety of subjects, the fourth volume contains a discussion of the present state of our knowledge of immunity by Dr. Joseph McFarland.

These clinics are always readable and valuable inasmuch as they are distinctly expressions of personal opinion on topics in which the authors are particularly versed. The form of publication remains unchanged.

THE BOSTON

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USE OF PUBLIC INSTITUTIONS FOR CLINICAL INSTRUCTION.

It has been interesting to observe, during the past few years, the gradual disappearance of prejudice against hospitals. Not many years ago, a hospital for general disease, not to mention those concerned with the treatment of the insane, was regarded as a place to be avoided rather than one to be sought by the critically ill. A gradual and natural change of attitude has come about, so that at the present time general hospitals, at least, are overcrowded with applications for admission, and the feeling against them, although at times met, is far less in evidence than it was ten years ago. For somewhat obvious reasons the prejudice against hospitals for the insane still exists, but here, too, it is evident that this feeling is gradually giving place to a more rational attitude. A natural tendency of this disappearance of prejudice has been the somewhat phenomenal expansion of hospital facilities, the foundation of new hospitals, both municipal and suburban, and the general use of such hospitals for the purposes of medical investigation and teaching.

Another curious prejudice, which likewise in great measure is passing, is the feeling that the medical student is in some way a dangerous and unprincipled person. The origin and persistence of this idea is no doubt based upon certain fancied or real attributes of the student of medicine, which the difficulties of acquiring necessary knowledge in years gone by forced upon him, a state of things happily at an end. In the second place the inexperience of the student, and his supposed active participation in the treatment of patients in hospitals, has led to a somewhat natural feeling of distrust on the part of the laity. All this also apparently is at an end for reasons which are too obvious for us to enter into here. The public is gradually, though with some difficulty, being educated to the feeling that the presence of the medical student, and the general medical interest which his presence implies, is a benefit rather than a detriment. In general, it may be safely said that the more examination and the more attention given to a given case the more adequate and satisfactory will its treatment be. This is clearly brought about by the presence of students in the wards of hospitals and institutions.

It should therefore be the aim of all public and semi-public institutions, which have to do with the care of the sick, to encourage the visits of medical students, under proper direction, for the purpose of observation and study of the patients there treated. We have long been impressed with the fact that, although our large municipal hospitals, here and elsewhere, are adequately used for purposes of medical instruction to the unquestioned benefit of the institutions as well as to the students, many other institutions affording excellent opportunities for the study of special cases are wholly neglected. This, we take it, does not arise from a lack of interest on the part of those controlling the institutions, but rather from the lack of initiative on the part of medical schools whose students might profit by the instruction which such institutions may afford. This opinion is reinforced by the fact that, in a recent conversation with one of the trustees of the Massachusetts Hospital for Epileptics, he said that the board of trustees and the management in general would be entirely willing to open the doors of the hospital for purposes of medical instruction to selected groups of students. In a recent report also of the Massachusetts School for Feeble Minded, the superintendent, Dr. Walter E. Fernald, makes the following statement:

One of the functions of a school of this sort is to provide clinical instruction for medical and other students. Graduating classes of medical students from Tufts College Medical School, the Boston University Medical School, and usually from the Harvard University Medical School, visit the school once or more each year, and are each given a clinic, where they are shown groups of cases illustrating the various types of mental defect. Hundreds of physicians now in practice in this and other states have thus been familiarized with this important form of mental disease. Classes from

Wellesley College, Harvard University and the State Normal schools also visit the school, to observe matters of psychological or pedagogical interest. Many teachers and superintendents of schools visit and observe the school classes.

That such a liberal attitude should be of great and distinct advantage to classes of students, and indirectly to the institution, is sufficiently self-evident. These two instances may serve as examples of the feeling which we are sure is widespread among men at the head of various institutions. Unquestionably the student derives a lasting impression from the observation of large groups of cases of similar character which he could hardly attain by the sporadic appearance of such cases at other less special hospitals. It is, therefore, to be regretted that more effort is not made on the part of authorities of medical schools to institute regular instruction at public institutions in the neighborhood of medical centers.

Information of great value to the student could be had in this way in tuberculosis, various forms of mental enfeeblement, epilepsy and its associated conditions, as well as in the great group of the insanities. It is furthermore not to be doubted that if interest were once excited in developing and using such institutions more systematically for medical instruction, opportunities now not thought of would rapidly develop. That sustained objection to the visits of medical students to institutions of this character should longer be made is not to be considered in spite of the fact that we may well expect occasional sporadic objections on the part of persons not thoroughly informed, or influenced by ulterior motives. The education of the public in such matters must be a gradual process, but the time should now be near at hand when it will be clearly recognized by any one of intelligence, who seriously considers the matter, that the greatest possible usefulness of institutions for the sick will be subserved by the publicity given them through visits of outsiders, and especially of those who have a distinct medical interest.

MEDICAL EDUCATION IN AMERICA FROM A BRITISH STANDPOINT.

IT may be remembered that Mr. A. Mosely, being impressed with the capacity of American engineers in South Africa, in 1902 organized a commission to visit the United States for the purpose of finding, if possible, an answer to the question, "How is it that the United States can afford to pay half a dollar in wages where we pay a shilling and yet compete with us in the markets of the world?" In a general way the answer seemed to depend upon the condition of education, using the term in its widest sense. Among other matters to which the commission gave its attention, was the question of medical education, which was under the charge of Dr. J. Rose Bradford of University College, London, and Dr. W. H. Gaskell of Cambridge.

A recent number of the *British Medical Journal* discusses some of the conclusions reached by the investigation of these men and published in full recently in a volume by Mr. Mosely. Dr. Gaskell comments on the uncertainty at present existing in this country regarding the best methods of instruction, and has found it, therefore, more or less difficult to get a definite idea of immediate tendencies. Many of his comments, however, are significant and of much interest to us as expressing the generous but critical attitude of a foreign observer. He finds, for example, that the tendency, which has become established in the universities of the middle west, not to confine physiology and human anatomy to the medical course one of the most hopeful signs for progress in biology. The separation which he deplores has, perhaps, been carried to its extremest limit in the large eastern universities, and we are inclined to think his implied criticism is an eminently just one, and one to which those concerned with the regulation of the curriculum should give renewed attention. Furthermore, he finds that the term physiology is quite differently understood here and in England. In America there are usually three distinct laboratories which concern themselves respectively with histology, including often embryology, physiological chemistry and physiology proper, whereas in England these subjects are usually included under the general head of physiology.

Dr. Gaskell was impressed with the conscientiousness of the teaching in American universities, with the earnestness of the students, as brought about particularly by the so-called concentration system, and also by the great strain thrown upon the teachers by this method. He says on the subject: "To my mind two of the most striking points about the laboratory instruction of all kinds in the States is the energy and activity displayed by the teachers, their earnest endeavor to do their utmost without sparing themselves, and the determination of the students to be taught."

The laboratories in general he found well equipped, and where modern research had in a measure outgrown the facilities originally provided, he notes the erection of new and adequate buildings, speaking particularly of Harvard and the University of Pennsylvania. In consequence of his very careful observations, Dr. Gaskell is led to make the following suggestions, among others, particularly with reference to medical education in his own country: Separate laboratories with separate staffs of teachers should be provided for anatomy, histology, physiology, physiological chemistry, experimental psychology, and perhaps neurology, the extreme concentration method is not recommended; it is preferable to extend a subject, such, for example, as physiology in the broad sense, over two years; histology should be connected with embryology and put into the department of anatomy, but the laboratories of histology and physiological chemistry should be under the control of the professor of physiology, the head of each department being an assistant professor; it is not proven that didactic lectures are in large measure a mistake and that recitations should largely take their place; a system of seminars is to be encouraged; a six or seven years' conjoint course for the academic and medical degree should be encouraged, and preliminary medical subjects should be included among the subjects for the degrees of arts or science.

Prof. Rose Bradford reports on medicine and surgery, after visiting a number of our medical institutions and also several in Canada. The excellence of clinical laboratories connected with hospitals, the utilization of out-patient departments for purposes of teaching, and the general tendency to make the subject taught as objective as possible by means of drawings, lantern slides, etc., all impressed themselves upon his attention. The recitation system also he regards as a method which has a very distinct educational value. His conclusions are systematically given in his own words as follows:

(1) That the enthusiasm of the teachers and of the students was one of the most striking features of his visit.

(2) All the leading universities had exceedingly fine, and in some cases magnificent, laboratories, and the equipment was of a high order of excellence.

(3) In the teaching of the non-clinical subjects the laboratory and practical side was especially developed.

(4) Systematic instruction by lectures seemed not to be in general favour.

(5) Even in the final subjects (medicine, surgery, etc.) the teaching was extraordinarily systematized; but, speaking generally, the students did not have the clinical facilities they obtain in this country (England).

(6) The scientific investigation of disease in clinical laboratories had reached a very high order of development.

(7) The teachers in this country, in such subjects as pathology, might well consider whether some of the methods in vogue, such as the early study of bacteriology and the custom of giving the class unknown organisms and sections to identify, and the careful record of the students' work, are not features thoroughly deserving of imitation.

Evidently the investigation of our methods, which we have very briefly alluded to above, was undertaken in no carping spirit, and so far as we may judge from the report at hand the impression was that the American system, though possibly still in an experimental stage, may offer suggestions of distinct value to the older schools in England. However this may be, we are more and more impressed with the great desirability of a free interchange of ideas on educational matters. It is difficult for us to conceive in this country of a method of education which shall approach in general character that given in the universities of Germany, but we can easily foresee the time in the two great English speaking countries when the best elements of the educational system of each shall be incorporated in the other. Certainly, that system must finally prevail which will at the same time provide the student with the greatest store of useful knowledge and, far more important than this, with the training which will make it possible for him to acquire knowledge independently. In the attempt to teach many the individual must not be forgotten. Certain elements in our developing system of medical education seem destined to bring this to pass in the greatest possible degree.

REPORT OF THE BOSTON INSANE HOSPITAL.

The report of the Boston Insane Hospital for the year ending Jan. 31, 1904, is a brief document, which nevertheless contains certain statements and suggestions of wide interest. Among the suggestions to which we would call attention is the establishment of a colony for certain of the insane of Boston near the city. It is remarked that all the state institutions, excepting Worcester and Medfield, now have colonies, and that were one established for Boston, it would permit a juster classification, and also would be distinctly profitable to the city through the estab-

lishment of a farm capable of supporting both the hospital in the city and the colony. The colony system for the insane, for the feeble minded, and for the epileptic, as well as for any other class of dependents in the community, has always seemed to us a rational means of meeting the problem. Any method by means of which such charges of the state or city may be made in a measure self supporting is certainly to be regarded as a distinctly progressive step.

The report further notes the fact that the trustees of the Boston Insane Hospital will no longer have charge of the non-insane dependents in the Hospital for Epileptics, in the State Hospital for Dipsomaniacs, and in the School for Feeble Minded, who will hereafter be cared for by the Board of Pauper Institutions' trustees. Dr. Edward B. Lane, superintendent of the institution, notes the fact that the past year has been the most active in the history of the hospital, the daily average population being upwards of 550 persons. The per capita cost for the year was $4.68, slightly more than that of the previous year. This institution, like others, suffered on account of the excessive price of coal, which curtailed the expenditure of money for other needed purposes. In general, the year appears to have been a satisfactory one, and with the completion of new buildings, which have been delayed in construction, the institution will no doubt enter upon another year of even greater usefulness.

We observe that during the year Dr. P. C. Knapp resigned from the position of chairman of the Board of Trustees, after a year's service in that capacity. We note also the resignation of Dr. John J. Thomas as pathologist of the consulting staff, and that no successor has as yet been appointed. It is to be hoped that the trustees of the institution may fully realize the importance of pathological study at an institution of this character, and that the work inaugurated by Dr. Thomas may not be long interrupted.

MEDICAL NOTES.

An Influx of Daughters. — All the alumni of the Harvard Medical School who announce the birth of children in the last quarterly of the Association seem to have been blessed with daughters.

National Academy of Sciences. — At a recent meeting of the National Academy of Sciences, among others, the following men were elected to membership: Prof. Paul Ehrlich of Frankfurt and Prof. William T. Councilman of Boston.

Bequest to Tulane Medical College. — The Louisiana State Supreme Court, meeting at New Orleans, has rendered a decision giving the bulk of the estate of the late A. C. Hutchinson, amounting to approximately one million dollars, to the Tulane Medical College.

New York State Cancer Laboratory. — It will be remembered that the announcement was made some weeks ago that the New York legislature had refused to make the annual appropriation of $15,000 for the support of this laboratory. It is now announced that there has been a change of heart, and that the chief opponent of the item has withdrawn his objection, so that the usual amount will be appropriated for the purposes of the laboratory.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, May 4, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 13, typhoid fever 11, measles 190, smallpox 0.

Antivivisection Bill Defeated. — The Committee of the Massachusetts legislature, before which the recent bill for the regulation and control of vivisection was held, has given leave to the petitioners to withdraw. This or a similar bill has had the same fate for several preceding years, and should serve as a further protest against the interference of possibly well meaning but misinformed persons.

Possible Abolition of Department of Statistics.— The Boston Board of Aldermen voted, at their meeting on May 2, to abolish the Department of Statistics The matter still requires action on the part of the Common Council, and will then go to the mayor. The discussion at the meeting of the aldermen showed that their action was the result of the most contemptible sort of petty personal politics, and it hardly seems possible that the other branches of the city government can concur in supporting such a policy.

A Memorial to Dr. John Homans. — Friends and associates of the late Dr. John Homans are desirous that some permanent and useful memorial shall be established in grateful recognition of his earnest, fruitful, and long-continued devotion to the cause of surgery.

It is their aim to raise a fund to be placed in charge of the Corporation of Harvard College, the income to be used to promote the acquirement of knowledge in the science and art of surgery in accordance with the recommendation of the Faculty of the Medical Department of the University.

It is hoped that as much as $50,000 may be contributed for the purpose of establishing a John Homans Professorship in the Harvard Medical School, and it is confidently believed that those who remember Dr. Homans' own loyalty and generosity will be glad to contribute towards the raising of this fund. Subscriptions may be sent to Charles C. Jackson, 15 Congress St., Boston.

NEW YORK.

Cottage Colony for Juvenile Asylum. — Seventeen buildings are now in course of erection in the hill country of the Hudson, near Dobbs Ferry, for a cottage colony to accommodate the New York Juvenile Asylum, which for many years has occupied a single large building at Fort Washington, on the Kingsbridge Road, New York City. This institution cares for a large number of the destitute, deserted and delinquent children of the city, and it is believed that the change to the new quarters will result in the physical, mental and moral improvement of the children. During the fifty-two years of its existence it has maintained and educated more than 38,000 children, and in the last annual report of the asylum the directors say: "The ancestry of the congregate school is not to its credit; advanced opinion is unfavorable to dull, forbidding and convent-like walls. Aside from the unedifying environment, the old system is incapable of reproducing the atmosphere of even an average home. It cannot give an adequate amount of individual attention; character development is necessarily neglected, and classification of children under it is a figment of the imagination. Classification is decidedly one of the desiderata of such an institution, and this is possible only where there are many groups, affording opportunity to take into consideration not only character, but stature and educational advancement." The plot of ground purchased at Dobbs Ferry consists of 277 acres, and the new home of the asylum, which will cost the city about $3,000,000, promises to be one of the model institutions of the world. When it is complete there will be about eighty separate and distinct buildings, including, in addition to the living cottages, a chapel, library, infirmary, schools, gymnasiums, workshops and administration buildings. In separate departments the children will be taught printing, shoemaking, tailoring, carpentry, plumbing and other trades, and the farm on which they will work will be a real farm. To meet the requirements of play there will be athletic fields, ample playgrounds and a campus where the boys will be drilled in military tactics. The cottage homes will eventually number about sixty, forty for the boys and twenty for the girls. Not more than twenty boys, nor more than fifteen girls will be allowed under one roof. Each cottage is to be a completed home, having even its own dining room, and each will be in charge of a "guardian" or "house parent" who will exercise as far as possible the functions of a real parent. All this is certainly very different from the manner of caring for the "charity child" in the past, either in this country or in England, and the results ought to be very gratifying.

Miscellany.

SYLLABUS OF SILLIMAN LECTURES AT YALE UNIVERSITY FOR 1904.

The lectures this year were given by Prof. Charles S. Sherrington, M.D., LL.D., F.R.S., of the University of Liverpool, on the subject,

INTEGRATIVE ACTION BY THE NERVOUS SYSTEM,

beginning April 22 and ending May 4.

Lecture I.

Physiological study of the integration of the animal body by the nervous system. Integration of a simple organism by the primitive nerve-net. The reflex unit: receptor, conductor, effector. Intercalation of the synapse into the conductor. The synaptic nervous system set over the nerve-net. Visceral and vascular innervation. Minute and precise use of time achieved by the nervous system: demand for this unequal in different parts of the organism: the synaptic system supplies it best.

Lecture II.

The synaptic system supplies isolated correlation between distant parts. Subdivision of effector organs and segmentation (metamerism). The segmental concept of the nervous system. The segments of a high type of vertebrate as judged by receptor and effector segmental fields. The nervous system of the segment. The integration of the segment as evidenced by nervous reactions. More minute and precise use of space given by isolated correlation: yet the nervous system remains a continuum.

Lecture III.

More varied use of space given by the synaptic system than by the nerve-net. With complexity of the organism increase in number and species

of receptors means correlation to a greater variety of changes in a greater number of environmental points. Reflex arcs and the principle of the common path. Successive use, not simultaneous use of common paths permitted. The proprio-ceptive field. Its quota of receptors. Characters of its reflexes — maintained, secondary. Nervous background and transient reactions. Spinal inhibition of knee-jerk. The common path acts as a whole. Conflicting arcs. Central inhibition and peripheral inhibition compared.

LECTURE IV.

Common paths in relation to private paths. Centrality of the nervous system. The extero-ceptive division of the surface field and its richness in receptors. Category or extero-ceptors. Skin pain: evidence of specific sense apparatus initiating it: characters of the reactions: nociceptive arcs, facile, protective. Nociceptive reactions prepotent in competition for common paths. Weak and strong reflexes. Reactions to which strong affective tone is adjunct are prepotent: such reactions usually consummatory. Physiological incongruity of nerve trunks; yet yield homogeneous results, because common paths inter-related.

LECTURE V.

Seeming inequality of reflex facility of motor mechanisms in one and the same segment. The extensor stroke. Positive stereotropism. Reflex progression of the limb. Apesthesia. Progression under decerebrate rigidity. Transient and maintained reactions. Forms of reflex contractions: brief, rhythmic, cataleptoid, maintained. Features of conduction referable to gray matter: delay, irreciprocity, summation. Conditions determining prepotency over the common path — quality of receptor, intensity of stimulus, duration of reaction. Central fatigue.

LECTURE VI.

The "scratch" reflex: reaction compared with the cardiac; refractory period; intensity; variation of form, two types of movement; the path of the arcs; proprio-spinal aboral tracts; the reflex plurisegmental and its arcs disynaptic with an internuncial path; fatigue and its place of incidence; attempt to obtain central fatigue; mutual reinforcement of allied arcs; the whole common path reacts as a unity; competition of conflicting arcs for the common path; two forms of central inhibition; after effects of inhibition. The common path a passive instrument in the hands of the various arcs. Distinct receptors and conjoined receptors; conflicting and allied arcs. Some psychical aspects of central interference.

LECTURE VII.

Spinal shock. Shivering. Meaning of spinal reflexes. Pseudo-affective reflex, and its spinal path. The relation of visceral reactions to the coarser emotions.

LECTURE VIII.

Nervous integration of the segmental series. Refinements of the receptors in the leading segments. Restriction of distribution a factor toward integration. Distance receptors: their frequency of use; they drive the total animal; they initiate and guide precurrent reactions as contrasted with consummatory; germ of conation attaching to them; derive affective tint from consummatory reactions to which they lead if associative memory attach. The brain developed over the arcs of the distance receptors, *i. e.*, the ganglion of the distance receptors. Relation between locomotion and receptive range. The "head" as physiologically conceived. The head and trunk and internuncial paths. Severity of spinal shock proportionate to the so-called height of the animal's neural development.

LECTURE IX.

Physiological method and the functions of the cerebrum. The "excitable" cortex in dog, monkey and anthropoid ape. Topography of places yielding reactions: strength of stimulus; epileptiform effects, primary and secondary movements: reinforcements, *e. g.*, perineum and trunk, neck and ocular deviation. Narcosis depth. Reciprocal innervation experiments. Silence of the post-central gyrus. Evidence of pyramidal tract. Character of the tract in anthropoids. Contrast in structure between precentral and postcentral cortex — cells, fibres. Degeneration consecutive to amputation, amyotrophy, and tabes dorsalis. Recovery of function after cortical ablation of limited extent. Hierarchy of centers.

LECTURE X.

Confluence of neural paths taken as token of psychical synthesis: tendency to accept also the converse. Convergence of retinal paths toward same region of cortex interpreted as indicating that synthesis of twin retinal impressions to a single sensation is effected by confluence to a single unitary neural mechanism. Binocular flicker. The rotating binocular lantern. Symmetrical flicker; asymmetrical flicker. Some uniocular and binocular comparisons. Binocular fusion in this case a time-combination, not a spatial combination. Cortical localization and composition of a sense-perception. Examination of anthropoid brain for a speech center. Conclusion.

ADVICE FROM A LAYMAN TO MEDICAL UNDERGRADUATES.

IN a recent address made by Maj. H. L. Higginson to the undergraduates of the Harvard Medical School his concluding remarks were as follows:

The world seeks your help in questions of hygiene, and of water supply, drainage and ventilation, because you of necessity study these questions.

See what happens. When our city needed a comprehensive system of water supply, it turned to a great physician who had organized and administered admirably our Massachusetts Board of Health. He has played the principal part in the wonderful Metropolitan system of water-works, as well as the Metropolitan systems of drainage and parks.

New York City searched for a competent man to unite and organize the Lenox, the Astor and the Tilden libraries, and chose Dr. John Billings, a well-known United States Army surgeon.

President McKinley selected an army surgeon who had gone into the fighting line to put Santiago into order after the siege of that city. This doctor (and general) justified the choice so well that he was given charge of all Cuba until it was ready to try self-government. We can safely trust in his good results in the Philippines.

Surely, gentlemen, you get your share of the work and of the honor of the times; and you have deserved it.

Do you believe that my words of advice to my young friends spring from convictions about your profession? A boundless field of knowledge, old and new; great power over mankind through your practice, your sympathy, your devotion; true happiness in seeing intimately the noble, loving side of life; a constant temptation to do good by a word of advice and a smile; the frequent chance to minister to a sore spirit or a weak resolution by firm cheerfulness and hope, — all these are yours, if you will.

But let me insist that you are to expect nothing except from yourselves. The world lies open before you, and invites you to its innermost nooks. Nobody penetrates so far into human life as the physician, if he will; and nobody stays there so surely as he, if he deserves his position. The world gives its rewards for deserts; and if by chance it throws a man a plum, he can only be grateful for the chance shot. See clearly what you wish; and if you fail, do not deceive yourselves about the fault. It rests on your own shoulders.

Banish all thoughts of yourselves, rely on your own powers, and think only of your subject; for your profession is in the making and needs every atom of your wits. Single-hearted, single-minded, devoted to your patient, you will surely win success.

Am I expecting too much of you? You are young gentlemen, carefully nurtured in your homes, and now enjoying the full education and training of a great medical school, conducted by able practitioners and teachers. You are citizens of our great republic, and know your duties. What is more likely to draw forth your best qualities and bring them to their fruition than the expectation of yourselves and of your fellowmen that you will accomplish high and noble results?

NOMENCLATURE FOR PULMONARY TUBERCULOSIS.

A COMMITTEE on nomenclature, consisting of Drs. Bowditch, Stubbert, Baldwin, Knight and Quimby, appointed by the American Climatological Association, suggests the following classification for cases of pulmonary tuberculosis:

Incipient. — Slight physical and subjective signs, with history indicative of pulmonary tuberculosis. Sputa, if present, without bacilli. *First Stage.* — Definite physical signs of localized infiltration; total involvement less than half a lobe, whether at one or more points; cough and expectoration with bacilli; constitutional symptoms slight. (In disseminated cases expectoration and bacilli may be absent with constitutional symptoms more severe.) *Second Stage.* — Infiltration of single or multiple areas approaching or equal in amount to one lobe; or smaller area in stage of softening; cough and expectoration with bacilli; constitutional symptoms, severe. *Third Stage.* — Infiltration in excess of one lobe, or if less in stage of well developed excavation; more severe constitutional symptoms.

The committee also suggests, as a classification of results of treatment in pulmonary tuberculosis, the following:

Progressive. — All essential symptoms and signs continue unabated. *Quiescent.* — Constitutional symptoms slight or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli still present. *Arrested.* — Absence of all constitutional symptoms; expectoration and bacilli still present; physical signs may or may not persist; foregoing to have existed for at least three months. *Apparently Cured.* — All constitutional symptoms and expectoration with bacilli absent for a period of three months. *Cured.* — All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life.

Correspondence.

JOHN WESLEY'S LIFE-LONG CAPACITY FOR WORK.

BOSTON, April 26, 1904.

Mr. Editor: The following account of the life and work of John Welsey from Sir Leslie Stephen's "History of English Thought in the Eighteenth Century" is of interest as showing the possibilities of physical and intellectual accomplishment in a lifetime.

"As a mere record of the quantity of work that can be got out of a single human being, endowed with untiring energy, and absolutely devoid of at least the lower forms of selfish indulgence, the account of his labor is encouraging to the strong and calculated to throw the weak into despair.

"For more than fifty years Wesley was the autocratic chief of his society, and not content with administration from a distance, personally inspected, at frequent intervals, every part of the machinery which he had organized. He travelled on his ceaseless round of duty some 4,500 miles annually; he preached two or more sermons a day; and it is calculated that in fifty-two years he travelled 225,000 miles, and preached over 40,000 sermons. The sermons were occasionally delivered to audiences of 20,000 persons, and at the age of eighty-six (1789) he records an address delivered to a congregation of 25,000. Though he doubts whether all could hear, the feat, considered as a mere exhibition of physical energy, is something stupendous. He rose every morning at four, allowing himself only six hours of sleep, though we are told that he possessed the faculty, common to nearly all great workers, of falling asleep at a moment's notice. He often rode seventy miles a day, and generally read as he rode, avoiding stumbling, as he tells us, by riding with a slack rein.

"On his eighty-fifth birthday he ascribes his health to his constant exercise and change of air, to his powers of sleeping, to early rising, and regular preaching during sixty years, at five A.M., and to his having had little pain, sorrow, or anxious care during his life."

Very truly yours,

WM. PEARCE COUES, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 23, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Cerebro-spinal meningitis.
New York . .	3,908,644	1,831	534	24.00	23.90	2.89	.44	3.00
Chicago . . .	2,021,086	643	136	20.21	21.92	1.24	.15	—
Philadelphia	1,407,968	595	151	27.40	16.13	1.85	.17	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	225	52	28.00	11.89	1.33	—	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	124	—	28.22	18.54	1.61	.80	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	78	20	26.33	13.86	4.16	—	—
Boston . . .	617,950	333	71	18.89	19.74	2.57	.43	.86
Worcester . .	136,925	40	10	7.50	20.00	—	—	—
Fall River . .	119,349	36	14	25.00	19.34	—	—	—
Lowell . . .	104,402	28	11	14.28	18.85	3.57	—	3.57
Cambridge .	100,998	27	6	25.92	18.51	3.70	—	—
Lynn	73,875	23	6	13.04	—	—	—	—
Lawrence . .	73,348	15	2	52.33	6.67	6.67	—	—
Springfield	73,020	16	2	25.00	—	—	—	—
Somerville .	70,413	26	5	34.65	15.40	—	—	7.70
New Bedford	68,863	34	9	23.53	11.76	—	—	—
Holyoke . . .	50,538	19	3	21.05	10.52	—	—	—
Brockton . .	46,601	13	6	15.40	—	—	—	15.40
Newton . . .	39,310	9	1	22.22	—	—	—	—
Haverhill . .	39,061	8	—	25.00	37.50	—	—	—
Malden . . .	37,205	8	1	12.50	25.00	—	—	—
Salem	37,188	7	3	—	—	—	—	—
Chelsea . . .	36,499	16	2	6.25	25.00	—	—	—
Fitchburg . .	36,335	18	5	11.11	33.33	—	—	—
Taunton . . .	34,577	11	0	9.09	9.09	—	—	—
Everett . . .	30,209	7	2	42.90	—	14.30	—	—
North Adams	29,201	9	3	18.18	18.18	9.09	—	—
Quincy . . .	26,798	9	3	9.09	27.27	—	—	—
Gloucester .	26,131	—	—	—	—	—	—	—
Waltham . .	25,797	5	—	—	20.00	—	—	—
Brookline . .	25,576	4	—	—	—	—	—	—
Pittsfield . .	22,870	9	1	11.11	11.11	—	—	—
Medford . .	21,956	4	1	50.00	25.00	—	—	—
Chicopee . .	21,692	7	1	42.90	—	—	—	—
Northampton	20,314	—	—	—	—	—	—	—
Beverly . . .	15,807	2	—	50.00	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	0	20.00	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	2	1	—	50.00	—	—	—
Hyde Park .	14,500	5	2	20.00	60.00	—	—	—
Newburyport	14,478	3	1	66.67	—	—	33.33	—
Woburn . . .	14,315	8	3	12.50	25.00	—	12.50	—
Melrose . . .	13,819	8	2	—	37.50	—	—	—
Westfield . .	13,809	3	1	—	33.33	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	7	1	28.60	—	—	—	—
Revere	13,609	4	1	25.00	50.00	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	4	3	25.00	25.00	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	7	1	14.30	14.30	—	—	—
Weymouth . .	11,350	7	1	42.90	28.60	—	—	14.30
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 4,196; under five years of age, 1,081; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,005; acute lung diseases 858, consumption 515, scarlet fever 49, whooping cough 10, cerebrospinal meningitis 63, smallpox 10, erysipelas 15, puerperal fever 2, measles 51, typhoid fever 43, diarrheal diseases 127, diphtheria and croup 91, influenza 11.

From whooping-cough, New York 5, Baltimore 3, Springfield 1, Fitchburg 1. From smallpox, Philadelphia 9, Pittsburg 1. From cerebrospinal meningitis, New York 55, Boston 2, Lowell 1, Somerville 2, Brockton 2, Weymouth 1. From erysipelas, New York 8, Chicago, Philadelphia, Pittsburg, Boston, Chicopee, Newburyport and Woburn, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending April 9, the death-rate was 18.4. Deaths reported 5,379; acute diseases of the respiratory organs (London) 167, whooping cough 223, diphtheria 57, measles 183, smallpox 9, scarlet fever 35.

The death-rate ranged from 7.0 in Walthamstow to 29.3 in Norwich, London 18.6, West Ham 16.5, Brighton 18.2, Southampton 13.4, Plymouth 19.7, Bristol 19.1, Birmingham 24.8, Leicester 13.7, Nottingham 17.8, Liverpool 19.2, Bolton 21.4, Manchester 21.5, Salford 20.7, Bradford 19.4, Leeds 22.8, Hull 16.6, Cardiff 13.3, Rhondda 18.3, Wigan 15.8, Merthyr Tydfil 17.9, Rochdale 19.5.

METEOROLOGICAL RECORD.

For the week ending April 23, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 17	30.19	38	49	28	51	46	48	W	S	14	4	C.	C.	0
M . 18	30.00	46	56	35	63	63	63	S W	S	14	9	C.	C.	0
T. . 19	29.76	44	60	28	54	96	75	W	W	6	14	C.	R.	T.
W . 20	29.69	32	38	26	89	95	92	W	N W	17	9	F.	N.	.44
T. . 21	30.09	41	53	34	54	44	49	N W	N W	15	17	C.	C.	T.
F. . 22	30.46	43	50	36	63	40	52	N W	S	8	8	C.	C.	0
S. . 23	30.44	46	56	37	33	44	38	W	S	5	20	C.	C.	0
☞	30.09		52	32			60							.44

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

EDWARD REED WHEELER, M.D., M.M.S.S., of Spencer, died in Winthrop, April 30, 1904.

MILLER COX, M.D., of New York, died on April 24 from pneumonia. He received the degree of B.A. from Union College, Schenectady, and was graduated from the College of Physicians and Surgeons, New York, in 1871. For twenty years he had been a medical inspector in the health department.

SOCIETY NOTICES.

NEW HAMPSHIRE MEDICAL SOCIETY.— The 113th anniversary meeting of the New Hampshire Medical Society will be held at Concord, N. H., Thursday and Friday, May 19 and 20.

G. P. CONOR, M.D., Secretary.

AMERICAN MEDICAL EDITORS' ASSOCIATION.— The annual meeting of the American Medical Editors' Association will be held on June 6 at 2 P.M., Dennis Hotel, Atlantic City, N. J.

AMERICAN PROCTOLOGIC SOCIETY.— The sixth annual meeting will be held at Seaside House, Atlantic City, N. J., June 8 and 9, 1904. The first session will begin at 10 A.M., June 8. The profession is cordially invited to attend all meetings.

A. B. COOKE, M.D., Secretary.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.— The examinations of the State Board of Medical Examiners of New Jersey will be held at Trenton, N. J., June 21 and 22. Application for the regular blanks should be made before June 11.

E. L. B. GODFREY, M.D., Secretary.
Camden, N. J.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.— A regular meeting of the Society will be held at Hotel Nottingham, Boston, Mass., on Thursday, May 19, 1904, at 7.30 P.M. The meeting will be in charge of the Section on Orthopedic Surgery, Dr. Kelly Sabine, Chairman. Paper I, "Congenital Hip," by Dr. J. D. K. Sabine; II, "A Case of Dupuytren's Contraction Cured without Incision by Brisement Forcé and Absorbents," by Dr. Emma B. Culbertson; III, "Report of a Case," Dr. Clara J. Alexander.

MARION NUTE, Secretary *pro tem.*
32 Mill St., Dorchester.

BOOKS AND PAMPHLETS RECEIVED.

Department of the Interior. Bureau of Government Laboratories. Biological Laboratory. Report on Some Pulmonary Lesions Produced by the Bacillus of Hemorrhagic Septicæmia of Carabaos. By Paul G. Woolley, M. D. Manila, 1904.

Department of the Interior. Bureau of Government Laboratories. I. New or Noteworthy Philippine Plants. II. The American Element in the Philippine Flora. By Elmer D. Merrill. Manila, 1904.

A Text-Book of Physiology. By Isaac Ott, A.M., M.D. Illustrated. Philadelphia: F. A. Davis Co., 1904.

Original Articles.

THE HYSTERO-NEUROSES AND THEIR RELATION TO THE PHYSICAL EXAMINATION OF ALL WOMEN PATIENTS.*

BY DANIEL H. CRAIG, M.D., BOSTON, MASS.,

Surgeon to Out-Patients, Free Hospital for Women; instructor in Clinical Gynecology, Tufts College Medical School; instructor Boston Polyclinic, etc., etc.

THE relationship between the hystero-neuroses and the physical examination of all women patients may not at once be clear, but I feel sure that you will be convinced that such a relationship does in reality exist. Physical examination occupies the same position relative to the hystero-neuroses that judge and jury occupy to the accused, or suspected, criminal. It is through their good offices that he must be acquitted or sentenced, and I feel certain that errors of judgment would be scarcely less frequent under the deplorable reign of lynch law than they are in cases of the hystero-neuroses when not tried and proved by physical examination. The ideas which I wish to express, although in this instance confined to the hystero-neuroses, apply with equal force to every form of reflex symptom, and I have chosen the hystero-neuroses only because I naturally know more of the evil effects accruing from the overestimation and underestimation of their importance than I do of any other.

First let us understand just what is meant by the hystero-neuroses. Engelmann [1] defines them as, "Those phenomena which simulate a morbid condition in an organ which is in an anatomically healthy state, and which are due, not to structural changes in the organ in which they appear, but to morbid or physiological changes in the uterus or ovaries." To uterus and ovaries I would like to add kidneys, although of course such an addition would necessitate a designation of broader scope than hystero-neuroses; but in women the urinary organs are so anatomically distinct from those of the male that they come logically within the most strictly limited province of the gynecologist.

The hystero-neuroses have been comprehended from time immemorial both by the medical profession and the laity, especially the neuroses incident to pregnancy; but in recent times they have been more commonly realized to be either understood or misunderstood by the profession ever since Emmet so forcibly called attention to them in 1867 and the succeeding years in connection with his operation for trachelorrhaphy. That they have been grossly misinterpreted is easily demonstrable. Examples are constantly appearing both at my office and at my outpatient clinic at the Free Hospital for Women; but as these latter are charity patients who have not, perhaps, as a whole, been able to command the services of the highest type of medical adviser, I have undertaken to see how frequently the hystero-neuroses have been misinterpreted amongst private, well-to-do patients. To this end I examined my current volume of case records with this investigation in view. I confined the examination to the current volume that I might not be open to the criticism of antedating, in the least, present progressive methods of research. The cases recorded are 194. Of these I find that the hystero-neuroses had been undeniably and unmistakably misinterpreted in 26 cases, or nearly 14%. This percentage is quite high enough to justify such a study, but when to this is added the fact that a certain number of these 194 cases had not consulted a general clinician, perhaps for years, that the cases were frankly gynecological from the outset, that their first resort was to me, and that of the above 26 cases in which errors had been made practically all had consulted *several* physicians, it is easily seen that the actual percentage is considerably higher; unfortunately, my records do not show exactly how much higher, as it is at all times difficult to obtain such facts, except from naturally loquacious patients, without arousing suspicions, often very unjust, of their own physician's thoroughness.

The hystero-neuroses have been quite abundantly exploited by our most able gynecologists, and it is not my intention to ply you with a repetition of these facts and I do not feel that there are any new ones to add. In fact, I think possibly they have already been overstated, and I am certain that a careful following of the methods which I adopted three years ago will considerably lessen the number of cases in which the diagnosis of an hystero-neurosis will be made. They have been woefully overestimated by some enthusiasts and equally erroneously understated by others.

This subject seems a fitting one for this occasion in that it has been very wisely said that the neuroses constitute the link which binds the specialist to general medicine. Virchow said, many years ago, that no man can be a thorough specialist who is not a good physician, and this grows more manifestly the fact each year as more elaborate and perfect means of investigation demonstrate the complex interdependence of the various bodily structures, for the human body is a mechanism possessed of marvelous powers of autonomous compensation whereby the function of any overworked or diseased organ is taken up either by other organs or by sound portions of the partially diseased organ. It is a thorough comprehension of these compensatory processes which distinguishes the wise physician from his less discriminating confrere.

The more thorough the physical examination of all women patients the less opportunity there will be for over- or underestimating the hystero-neuroses. Probably those gynecologists who in the eighth and ninth decades of the century but just ended were urging the importance of the hystero-neuroses little thought that need would ever arise for cautioning the profession against

*Read, by invitation, before the Massachusetts Medical Society, Middlesex (East) District, March 16, 1904.

[1] System of Gynecology, Mann, p. 151 et seq.

the exaggeration of these conditions. But I am so impressed with this necessity that I have formulated the rule for my students, "*Never accept any symptom as an hystero-neurosis until every other possible cause has been rationally ruled out.*" I might stop right here for such causes cannot be rationally ruled out except after painstaking physical examination.

Why is the thorough physical examination of patients, not only women but men as well, so neglected? Some will give one answer, some others, but there should be no laudable reply. In the minds of the laity it is not the greater diagnostic or therapeutic acumen that distinguishes the specialist, but the greater thoroughness of his methods of investigation. It is usually for diagnosis rather than treatment, except in the case of major surgery, that the patient seeks, or is sent to, the specialist. And just here permit me to say that I am by no means attempting to contrast the specialist with the general clinician, because to do so would as often be disastrous to the one as to the other. As compared with the really industrious, studious, general clinician every specialist is a man of small attainments, and his sole right to existence lies in his possession of knowledge which the circumstances of a busy and varied practice make it well-nigh impossible for his confrére to obtain. My personal experience leads me to believe that the gynecologist errs through overestimation of the hystero-neuroses nearly as often as the general clinician does through underestimation. However, that this overestimation is not characteristic of all gynecologists is readily demonstrable from the writing of a few, as, for instance, Ford[2] who, incited by this overenthusiasm, goes so far as to deny all reflex action to lacerations of the cervix uteri. A more temperate statement is nearer the truth, and the truth, the whole truth, and nothing but the truth is what science demands.

The gynecologist, like every other specialist, unless he carefully guards against it, is all too prone to come, in time, to consider the female pelvis or, of course, the respective organs over which the other specialists preside, as the abiding place of all the evils to which female flesh is heir. I know no remedy which will so speedily dispel this fantasy as the routine, thorough, physical examination of all women patients.

But to return to the reasons for the neglect of physical examination. The incompetent neglects physical examination because he fears, first, that he will know no more at the end than at the beginning, and, second, that the patient may attribute his long search for causes to a limited diagnostic knowledge. To such I say: Begin such routine examination at once in all patients, and this practice alone will inevitably make competent diagnosticians of them in a few weeks or months. It will be found a veritable postgraduate course. The busy man will reply that it consumes too much time. This is not true. The patient has a right to demand so much of the physician's time as is essential to diagnosis. At my out-patient clinic it is the rule to treat, in from two and one-half to three hours, from 20 to 36, or even more, patients, of whom from 3 to 7 are new ones, with the aid of one assistant. In each new patient the full physical examination obtains, and I am sure the time consumed is not excessive. Another says patients object to the exposure. Not if they are made to understand the all-importance of learning accurately every available fact in their case. The man who is content to prescribe for his patient after merely listening to the patient's recital of her symptoms is not in the true sense a member of the fraternity devoted to medical *science*. His methods are strictly empirical. But he, in thus following the example of the charlatan, handicaps his professional brethren, for patients come to assume that a doctor must be able by merely looking at their faces and listening to their voices to make the most difficult diagnoses. Believe me, for I speak from experience, nothing so much pleases a patient, after it is all over, as a comprehensive examination.

Nor am I pleading that a pelvic examination of every woman be made. No, indeed. I have said, Accept no symptom as an hystero-neurosis until every other cause has been rationally excluded. And what does this preclude? First, it precludes the necessity of doing what my experience leads me to believe a majority of the general clinicians avoid. That is, a thorough study of etiology, pathogenesis and pathology. It is my belief that most busy physicians on meeting a puzzling case turn to their libraries and open the appropriate book to the desired subject. They then turn the leaves hastily until they reach the symptomatology, diagnosis, prognosis and treatment. These they read with deep interest, but how will a doctor permanently cure without removing the cause, and how, except by fortunate accident and with the aid of long-suffering nature, will he remove a cause without a thorough knowledge of it? In short, the laudable tendency of modern medicine to eradicate causes renders it incumbent upon the physician to read the very portions of his literature which the above example slighted. A thorough knowledge of etiology and pathogenesis becomes the keynote of success. If then a thorough search might be invariably made for extrapelvic causes of symptoms which might or might not be hystero-neuroses, all necessity for intrapelvic examination may often be proved wanting, and in doubtful cases, especially in single women, the therapeutic test may often seem justifiable before proceeding to pelvic exploration.

If, however, there is any form of neurosis in which great allowance is due the errors of estimation it is the hystero-neurosis, because there exists good and sufficient reason wherefore the general clinician is less proficient in gynecological diagnosis, at least in its refinements, than is the case concerning other organs. This arises from the difficulty naturally encountered in

[2] W. E. Ford, Trans. Am. Gyn. Soc., Vol. xx, 1895.

supplying large numbers of demonstrating cases to the student during his preliminary studies, and also from the fact that in practice a pelvic examination is to be avoided whenever not positively indicated, and particularly in the young unmarried. But it is just here that the knowledge of the hystero-neuroses comes in play. A thorough comprehension of this subject and a realization that pelvic lesions may cause distant neuroses with pelvic symptoms so slight as to have been overlooked by the patient will, after a thorough examination of the seat of the reflex symptoms without any discovery of a cause, lead to such a pelvic examination with the happiest results.

It seems almost unnecessary to even name one of the many instances in which the hystero-neuroses have been made a diagnostic scapegoat. You have each and every one seen such. I refer to symptoms anywhere from head to foot which, with or without a semblance of reason, have been attributed to the menopause. So firmly have women become impressed by these gross exaggerations that many a perfectly healthy woman looks forward for years with apprehension to the dreaded ' change of life " only to learn by experience what doctors should long ago have learned by observation, that a woman with healthy pelvic organs has nothing to fear from the menopause. When hystero-neuroses or local pelvic symptoms arise at the inception of the menopause they are as much an indication for investigation and treatment as they are at any period of a woman's existence. And if this rule might be invariably followed, just try to realize the cases of cervical carcinoma which would be recognized in the early stages when radical operation has most to offer.

Thus far I have spoken only of the advantage to the patient in the thorough investigation of the causes of disease but the patient is by no means the only gainer. Insufficient physical examination very frequently leads to a three-fold error: first, an incorrect, or at least inexact, diagnosis; second, an incorrect therapy; and third, an erroneous prognosis; and the patient, and her friends, will readily forgive, if they ever suspect, the first two, but will inevitably discover and possibly grudgingly forgive but never forget the third. The prognosis is the one element in every case which the layman can judge critically and justly if very often harshly. Therefore, if the penalty for an error must be paid it often falls to the lot of the patient to pay the first installment but the doctor usually pays in the end and frequently the lion's share.

One last, by no means negligible, advantage to be gained by the comprehensive physical examination of all patients is the discovery that the patient may be suffering from two or more distinct pathogenies in no way related to each other directly nor reflexly except in so far as both disturb general metabolism. This constitutes the class of cases in which the general clinician, the family physician, and the specialist reach their highest degree of efficiency through intelligent co-operation, each coincidently attending to those factors within his legitimate scope.

Permit me to outline what, in the foregoing, I have meant by a thorough physical examination. Three years ago I adopted the rule to which I have since strictly adhered, that every new patient be examined as to the condition of all viscera, those of special sense alone excepted, these being considered beyond the limits of the average gynecologist. The first step is a routine anamnesis. And when I say routine I do not allude to the filling in of spaces left in a printed form. Nothing could be worse. A short experience with such history blanks is all that is necessary to convince anyone that no one blank will accurately adjust itself to all cases any more than will one prescription. This recording of histories is too frequently neglected by general clinicians. It often serves as the opening wedge to discover facts which would otherwise remain hidden either through the patient's underestimation of their importance or her idea that they can have no connection with symptoms in remote organs and hence their concealment through false modesty. It is always possible, by beginning at the beginning and inquiring in the most commonplace way as to the age at which menstruation began, to get a full menstrual and pelvic history without in the least offending the delicacy of the most scrupulous.

The history completed, the patient's heart and lungs are examined by auscultation and percussion. Realizing the intimate relationship existent between respiratory and intrapelvic lesions, catarrhal conditions of the upper air passages should be looked for. The abdomen next receives attention, the liver and spleen being percussed out and palpated if possible. Robson's and Boas's points are palpated for evidences of gallstones. The kidneys are next investigated as to palpability, mobility or enlargement and the course of the ureters followed down to the pelvic brim. The position and size of the stomach, colon and small intestine are next determined by auscultatory percussion, and the colon and iliac regions are palpated for evidences of appendicitis, ovarian tenderness or colonic fecal impaction. The hypogastrium is palpated for uterine or bladder enlargement or tenderness. The history will always determine the regions which must have careful examinations and those in which we merely wish to be assured that all is really normal. And no man of discernment requires to follow this routine long to learn how inadequate to complete and accurate diagnosis the patient's statement of symptoms is.

The abdominal viscera well understood the pelvis is investigated. This with the general clinician will not, of course, follow in every case as it does with the gynecologist, but should follow, in all except the young unmarried, in all cases in which symptoms exist which are known to result from hystero-neuroses, even occasionally, when every known extrapelvic cause has been exhausted without satisfaction.

With the supersensitive patient nothing so

greatly facilitates the pelvic explorations as nitrous oxide. It is easily given at the office and produces a transient but quite sufficient relaxation with no disagreeable after effects beyond a possible momentary dizziness.

The thighs and legs, containing no important viscera, are examined only when the seat of special symptoms.

The following are a few cases selected as types either of belittling or exaggeration, or both in the same case, of the hystero-neuroses taken from the twenty-six cases above mentioned.

CASE I. Mrs. H. F. M., age thirty, married seven years, never pregnant, housewife. Family and past histories entirely irrelevant. First catamenia at twelve, always regular and painless, of five to seven days' duration and requiring from five to seven napkins. Last catamenia one week ago exactly on time. Present illness: Two years ago, while travelling in Mexico contracted dysentery (?) and was ill several weeks. Extreme rectal tenesmus resulting in frequent, prolonged and violent straining. During this straining on one or two occasions felt as though something gave way in the pelvis. Never wholly recovered from this attack and has been constantly under medical attendance ever since. Has been under the care of three general clinicians and one who, while stopping at the same summer hotel, proclaimed himself a specialist in gastro-intestinal diseases. Since the abatement of the dysentery (?) she has had a great variety of gastro-intestinal symptoms but no marked diarrhea; on the contrary she has been generally inclined to constipation. No one of the four doctors had ever even suggested to Mrs. M. that she loosen her clothing for examination. There were absolutely no pelvic symptoms, not even a noticeable leucorrhea.

The physical examination showed a catarrhal nasopharyngitis for which she was advised to consult a competent specialist with the offer of assistance in selecting one if necessary. The heart and lungs were entirely normal. Examination of the abdominal viscera revealed nothing abnormal beyond the fact of a moderate distention of the intestine with gas. Both kidneys were easily palpable but not pathologic. The abdominal examination failing completely to show adequate cause for the gastro-intestinal symptoms and realizing the effects that the violent straining of two years before might have had on the pelvic organs a pelvic examination was made and a readily replaceable, considerably enlarged uterus was found retroverted to the third degree. Both tubes and ovaries normal. The uterus was replaced with immediate relief of all gastro-intestinal symptoms, and as no form of packing nor support was well tolerated, Alexander's operation was done two months later. At the present time, ten and one-half months after the operation, this patient remains entirely well and is again travelling abroad.

In this case I am certain that had any one of my four predecessors made a thorough physical examination he would at once have been impressed with the disparity between the symptoms and the absolute normality of the stomach as to position, size and tenderness. This case clearly indicates a lack of appreciation of the hystero-neuroses and by way of contrast permit me to cite one in which they were as grossly overestimated.

CASE II. Miss E. T., age forty-three, single, no occupation. Family history excellent, also past history. Had never had any acute serious illness. Had vulvo-vaginitis as a child but recovered promptly and completely but as a result had ever since been warned by her mother to expect all sorts of pelvic troubles. First catamenia at fourteen, always regular and never painful after the first year. Duration four to six days using two napkins a day. Last catamenia four months ago and had been gradually growing less. One year ago, after a comparatively mild attack of la grippe, became weak and anemic and began to have considerable leucorrhea which has persisted up to the present. During all this year catamenia gradually growing less, and six months ago began having backache, usually in lumbar region. For past two months has had pains, at times quite severe, in the epigastric region and extreme fatigue amounting almost to inability of locomotion. Four months ago consulted her physician who heard her recital of symptoms, and without further examination prescribed for supposed reflex neurosis arising from the supposed effects of the menopause and assured her that there was not the least occasion for alarm. As this treatment, however, yielded no results he advised her to consult me with the idea of having a curetting done.

Physical examination showed heart, lungs and abdomen absolutely normal beyond a questionable hepatic enlargement. Examination of the pelvis showed the leucorrhea to be thin and milky and coming almost, if not quite, entirely from the vaginal walls. The uterus was small suggesting the beginning of postclimacteric atrophy, was freely movable and no pelvic abnormality could be detected. The spine was slightly rigid, a little tender in the lumbar region, and the patella reflex was abolished. Delay was advised and a note sent to her doctor and the woman taken to a prominent neurologist who confirmed the diagnosis of tabes dorsalis.

The subsequent history of this patient is unknown to me, but it is evident that the menopause occurred, as it should have done in a normal pelvis, absolutely without symptoms and that the leucorrhea was the direct result not of a local lesion but of general debility and anemia. The fact of greatest interest in this case, however, is that special knowledge was not in the least demanded to exclude the pelvic origin of the symptoms, and there is not a doubt that the physician from whom she came was entirely competent to make the correct diagnosis as well as any specialist, had he followed the rule of investigating the causes of symptoms.

I wish to cite just one further case in which the question of the hystero-neuroses was by no means as simple, for it is quite possible to find many cases in which certain extra-pelvic symptoms are of undoubted reflex origin while coexistent symptoms have definite local pathologic basis.

CASE III. Mrs. N. M. T., age thirty-five, married four years, never pregnant; father and mother living and well. Past history good. Present illness began four years ago. Has had more or less leucorrhea all her life. First catamenia when eighteen, and was then operated upon for imperforate hymen. Irregular from the first. Never knows when to expect flow. Last menstruation two weeks ago. Always painful. Moderate pain in left iliac and sacral regions all the time, but decidedly aggravated at the menstrual epoch. Dura-

tion of flow from four to eight days, requiring four or five napkins a day. No clots and no odor.

Two years ago began having what her physician termed "nervous indigestion." A few months later began suffering severely, at times, with a pain of variable character but always located exactly at the vertex. Often felt as though head was opening and shutting and she feared impending insanity. One year ago resorted, on her own responsibility, to a well-known specialist in gastro-intestinal diseases. Was told after a thorough examination of her abdomen, and nothing more, that she had a gastro-ptosis and entero-ptosis. Gastric lavage was advised and practiced with marked relief of the gastro-intestinal symptoms, but the headache, leucorrhea, sacral and left iliac pain, which she was assured were the result of debility owing to malassimilation, remained uninfluenced. Not feeling satisfied herself that these were entirely nutritional symptoms she, once more on her own authority, sought a gynecologist. After taking her history he assured her that all her troubles were probably reflexes from the pelvis and proceeded to a pelvic examination and made no further investigation. Under his treatment she made some pelvic and head improvement, but the gastro-intestinal symptoms recurred. It was at this point, that through the advice of her neighbor, she came to my office.

The result of the physical examination was as follows: Heart and lungs normal. Abdominal examination shows a normal or but very slightly enlarged stomach considerably ptosed while the transverse colon was considerably below the umbilicus and was V-shaped and much dilated with considerable fecal impaction at the sigmoid flexure. The pelvic examination showed a large uterus with a very short portio vaginalis which is moderately antereflexed. Left ovary the size of a pullet's egg, prolapsed and firmly adherent. A peculiar band, resembling the cicatrix of a vaginal laceration, in the upper left portion of the vagina. On operation, six weeks later, the left ovary, completely degenerated, was removed and the omentum was found rolled up, and thus much shortened, and adherent directly across the pelvis so that the traction thus caused was producing the gastro- and coloptosis mechanically. Before her discharge from the hospital the stomach and colon were very nearly in their normal position, and when last heard from, a year and a half after the operation, she was well and attending to her household duties.

This case has been cited because it is one in which a particularly good history was obtainable. She was a self-reliant, assertive woman who stated facts clearly and without questionings, and above all because it demonstrates the shortcomings of the family physician in failing to make any physical examination at all, and each of the specialists, in confining his examination to those organs within the limits of his own particular specialty.

Illustrative cases might be cited in great abundance, but I think the above are quite sufficient as exemplifying my meaning.

TUBERCULAR MENINGITIS IN ADULTS.*

BY HENRY JACKSON, M.D., BOSTON,
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Various diseases of the brain and the meninges are among the most serious diseases with which we have to deal, serious because of the importance of the vital organs attacked, and in many instances presenting indefinite symptoms that make the diagnosis difficult. There are a few symptoms that offer us great assistance in arriving at the diagnosis of some intracranial disease, and it is the experience of most clinicians that the physician must be satisfied if he is able to make a diagnosis as to the organic processes present, even though he cannot accurately define the exact pathological condition which has caused the organic process believed to exist in the individual case.

Trauma, syphilitic disease, cerebro-spinal meningitis, meningitis secondary to various pathological processes, as the diplococcus of pneumonia, and septic organisms and tubercular meningitis — all give rise to intracranial diseases that have many points of resemblance in their symptomatology though their etiology is so different. Add to these diseases the effect of mechanical processes which cause symptoms suggestive of meningitis, and we find ourselves brought face to face with a most difficult problem in the differential diagnosis of a supposed case of meningeal disease. Examples of mechanical processes which simulate intracranial disease are found in edema, due to chronic alcohol, the so-called "wet brain" of the drunkard, and internal hydrocephalus, dependent upon closure of the canal between the third and fourth ventricles by the organic remnants of a previous meningitis that has run its course. The enumeration of these various diseases does not represent a theoretical consideration of any and all processes that may give rise to symptoms suggestive of meningitis, but is a review of conditions that in some cases must be considered *seriatim*, while in all cases many of the conditions must be eliminated to enable us to arrive at a fairly probable diagnosis.

In meningitis we have many symptoms common in several diseases, as fever, headache, general malaise, and often leucocytosis. We find fever in cases of simple trauma, often of a high grade, and on the other hand, the temperature may be quite low in tubercular meningitis, and other forms of meningitis of an inflammatory origin.

Headache is usually present, but often it is not severe, and in many cases the sensorium is so dulled that at all events there is no expression of pain in the head though it may be present.

Leucocytosis is a symptom of importance, chiefly because we must not place too much reliance upon it in making our diagnosis. We often find a leucocytosis of moderate degree in trauma or cerebral hemorrhage, and it may be absent in local suppurative processes. In acute cerebro-spinal meningitis a high white count is the rule, a symptom that usually is of importance in the differential diagnosis of tubercular meningitis, but I have seen a high white count in tubercular meningitis, and thereby been led to make an incorrect diagnosis. It seems probable that the white count in meningitis is independent of

* Read at the meeting of the Boston Society for Medical Improvement, January, 1904.

acute inflammatory processes, as leucocytosis may be found in cerebral hemorrhage as we find fever without the demonstration of any acute septic process.

The most important evidence to be drawn from the presence of leucocytosis in a doubtful case is that thereby we may with much assurance eliminate typhoid fever, a disease that must be considered in most cases. My personal experience is that I have never seen leucocytosis in a case of uncomplicated typhoid fever. I am aware that such cases have been observed, though very rarely.

Delirium, fever, stupor, or maniacal symptoms may be present in meningitis in common with other diseases, hence arises the difficulty of diagnosis in doubtful cases. As meningitis may be due to so many causes, it is fair to assume that we must always be on our guard to eliminate this serious disease in cases where such a diagnosis is possible.

We have two classes of symptoms directly dependent upon the organic changes in the brain or meninges on which to base our diagnosis, namely, disturbance of the pulse rate and paralyses of various muscles, especially of the eye and face. In the pulse we have a sign of the greatest possible value which may not be disregarded if present. In the early stages of meningitis, or in cases with moderate effusion within the head, we find a slow pulse as the result of irritation of the vagus, while in the later stages we have an exceedingly rapid pulse from paralysis of the same nerve.

Looking at this matter from a practical standpoint, a slow pulse, or a relatively slow pulse, in a very sick person should always arouse the suspicion that there is some factor which is causing an abnormal reduction in the rate of the pulse. The pulse of typhoid fever is slow in comparison with other diseases that have a similarly high fever, but this rule does not apply in cases of fever in which the individuals are so sick as to suggest the probability, or even the possibility, of meningitis. I have seen in consultation three cases, all with a slow pulse, yet evidently very sick; the slow pulse was in each case a source of relief to the attendant physician, whereas to my mind the slow pulse was one of the chief causes for alarm. Two of the cases were tubercular meningitis, and one evidently cerebral, though the diagnosis was obscure. All died within a few days of the time that I first saw them, and in all an exceedingly rapid pulse preceded death. If the pulse be not only slow but irregular, or intermittent, it furnishes still greater cause for alarm.

On the other hand, a pulse of normal rate, or one with a rapidity such as might be expected from the general condition of the patient, is a strong presumptive proof that the case is not cerebral in origin. Therefore, taking these two factors into consideration, it may be stated with much confidence that in the pulse we have a strong bit of evidence for or against the existence of meningitis in an individual case.

The existence of paralysis of one or more muscles of the eyes, or of one of the muscles of the face, is of the greatest value. The paralysis may be so slight that doubt arises whether the slight deviation may not be natural to the individual. As a rule one or more muscles are affected; rarely is the lesion sufficiently great to produce absolute paralysis of any of the larger muscles of the extremities. Especial attention should be paid to the existence of paralysis, as it is a sign easily overlooked when the patient is very sick. Twice I have seen cases in which a facial paralysis was not recognized, as in the ordinary motions of the face it was not recognizable, though pressure on the point of exit of the supra-orbital nerve made it apparent.

It is not rare in hospital practice to meet with cases of tubercular meningitis in adults, and, as in my experience these cases are essentially different from the disease as seen in children, it seems worth while to review the recent cases in the Boston City Hospital with the addition of one seen in private consultation.

I have notes of eighteen cases collected in the last few years at the City Hospital. Seven cases were between eighteen and twenty-five years, eight between twenty-five and thirty, and three between forty and fifty years of age. In hospital practice the previous history of a patient is apt to be rather unreliable, though perhaps not more so than the history of our private patients, especially when we consider the accurate data usually gathered by our house officers. In one case no history was obtainable; in three cases there was a history of a subacute disease two years before coming to the hospital which certainly suggests the possibility of a preceding subacute tubercular process, namely, in one case pleurisy, in one case a slight cough which lasted a long time and kept the patient in bed, and in the third case some disease that kept the patient in bed several weeks, though he recovered subsequently.

Fourteen of the hospital cases gave no history of a disease preceding their present attack on entering the hospital. The case seen in private practice had not been sick for over seventeen years, during which time his wife could give us accurate information. Therefore, it is evident that in making the diagnosis of tubercular meningitis the lack of the evidence of a pre-existent tubercular trouble is no strong argument against the probability that the individual has tubercular meningitis.

The history, however, does not agree with the post-mortem examination, as in only two cases did the pathologist fail to find the evidence of an old healed tubercular process. On the other hand, no one of the cases showed extensive tubercular disease susceptible of diagnosis by our recognized methods of clinical examination.

Therefore, as in the case of the history of their preceding illnesses, the general examination failed to suggest a probable tubercular trouble, except possibly in two instances: one patient was admitted for acute pleurisy of the usual type, and

did not develop cerebral symptoms until four weeks after entrance to the hospital; the other had a chronic tubercular hip joint disease, which had existed since childhood and was said to have resulted from an early infantile paralysis. This latter case might probably have been diagnosed as tubercular, though it was not.

The period of sickness before entrance to the hospital was varied, but, as a rule, much shorter than the incubation period as seen in children. One case was admitted as a sunstroke case, with the history of an acute attack of unconsciousness. One case had complained of sore throat for two days; one had been sick for two weeks; three for a week; seven for ten days; in one no history. In fifteen cases, therefore, the disease was abrupt in its onset, or preceded by symptoms of short duration. One patient had been sick with vomiting and diarrhea for four weeks; this attack had followed, and was supposed to be due to, the eating of uncooked ham. In three cases only was there a history of symptoms extending over a period of several weeks, and in these three cases there was a general, acute, miliary tuberculosis in addition to the tubercular meningitis. The prodromal symptoms in all were indefinite, symptoms suggestive of many acute febrile diseases, rather than pointing towards a definite cerebral trouble. Four only of the cases laid especial stress on headache and vomiting, though headache was present to a certain extent in other cases. Three were delirious, and in one the mental symptoms were so marked that some form of insanity was considered possible. In the other cases the symptoms were described as weakness, malaise, fever and cough, or stomach trouble, as in two instances.

A good idea is obtained of the general impression that the cases made when first seen by the fact that in most of the cases the blood was examined by the Widal test. The course of the disease as it progressed in the hospital was that of some cerebral trouble. One third of the cases presented the type described as typhoidal delirium; two thirds presented varying grades of stupor and delirium. A small number were noisy and delirious. Headache was often complained of when the question was raised, but in only one case was severe headache an important and prominent symptom, that is to say, the disease in adults is not usually marked by the same headache, photophobia, cerebral cries, and extreme restlessness that make up the picture of the disease as usually seen in children.

In two cases there were convulsions. So far, then, we may say that the cases present nothing in their previous history suggestive of tubercular trouble, nothing in the history of the prodromal period that may establish the proof of a cerebral disease, whereas the course of the disease itself offers pretty strong proof that we have to deal with some acute cerebral trouble.

Taking up the physical signs, in all the cases but one, the pulse was slow in the first part of the acute stage. The pulse rate was usually from 60 to 70, until the last few days of the disease, and occasionally the pulse was as low as 50. In the last two or three days of life the pulse rate was 130 to 150, even rising in a few cases to 180, the average 140. Comparing the slow pulse rate just given with the picture of the general condition described, as stupor, delirium or noisy maniacal conditions, and the marked discrepancy between the pulse and the general condition, offers us practically proof that the pulse rate is dependent upon cerebral trouble. The temperature was unimportant, rarely over 102.5°, usually from 100 to 101°, and in one case normal or under after the second day.

The white count in nine cases showed on the average a much smaller number than in acute cerebro-spinal meningitis. In one case 23,000, in another 17,400 white cells were counted, in the other cases the count was at or below 12 000.

(1)	12,500	(6)	12,000
(2)	17,400		7,200
(3)	10,000	(7)	7,500
(4)	12,000	(8)	6,500
	10,000	(9)	9,400
(5)	12,800		
	23,200		

The small leucocytosis favors the diagnosis of tubercular meningitis as against acute cerebro-spinal meningitis.

Lumbar puncture was done in eight cases; in all the fluid spurted out showing that it was under pressure; in each case the fluid showed no growth, except in two cases the albus as a contamination from the skin; the fluid was almost clear, with a few flocculi. In one case the bacilli of tuberculosis were found on microscopic examination.

The lumbar puncture in these cases is, therefore, very different in its results from acute cerebro-spinal meningitis. In the latter we find pus or semi-purulent contents, and organisms are easily obtained by culture. Examination of the fundus oculi gave little information; in only one case was neuritis found. Retinal tubercles are certainly rarely found. In four cases the fundus is distinctly described as normal.

Paralysis. — In three cases no paralyses were noted, but these cases were very sick and death ensued shortly after entrance to the hospital in two. In one case extensive and marked paralyses were present, namely, a dilatation of the left pupil, and a complete left hemiplegia, face, arm and leg.

In two cases there was very slight facial paralysis in addition to strabismus.

In twelve cases paralysis was found limited to one or more of the muscles of the eye. We may then say that the rule is to find paralysis limited to the eye muscles. In this regard there is no difference from cerebro-spinal meningitis, but the paralysis found in syphilis, cerebral edema and trauma is usually more extensive.

Other signs of cerebral trouble were found, but less frequent and less marked than in cerebro-spinal meningitis, namely, retraction of the head, Kernig's phenomenon, and opisthotonos, the last mentioned sign being found only once.

After the onset of acute symptoms three died in less than two weeks, and several died in less than one week, two cases lived for three weeks.

Autopsies. — The post-mortem findings corresponded very accurately with the clinical examination as to the lungs, in no case was there found a lesion that was sufficiently marked to give rise to signs during life.

In sixteen of the eighteen cases small areas of chronic tuberculosis were found; small areas in the lungs in nine cases; caseous bronchial lymph glands in seven cases; chronic tuberculous hip in one case.

Acute miliary tuberculosis was found in the lungs in seven cases, and general acute miliary tuberculosis in five cases.

The cord was involved in a large number of the cases, as well as the meninges of the brain, namely, in eight cases. It seems to me that the involvement of the cord is not usually considered as so common. The meninges of the brain were involved alone in ten cases.

In the case with left hemiplegia there was marked flattening of the convolutions, the result of increase of the subdural fluid.

I give the history of two cases.

CASE I. Woman, twenty-one years of age. Previous history, always well. Present illness: For one week a cold with a little cough; for three days had been weak and sick. She entered the hospital on Aug. 25.

Physical examination on entrance as follows: Sordes, typhoidal appearance; pupils not abnormal; lungs not abnormal. Aug. 27, head retracted, tache cérébrale. Aug. 29, less stupor, convergent strabismus of right eye. Aug. 31, fundus normal, W. N. B., probably tubercular meningitis. Sept. 1, ptosis of left eyelid. Sept. 7, gradual failure and death.

Pulse slow to Sept. 1, later rapid. Temperature 101–102°.

Autopsy. — Area size of an almond of caseous tuberculosis at one apex. Tubercular cerebro-spinal meningitis.

CASE II. Man, forty-two years of age. For seventeen years he had had no serious illness. He went to Europe in the spring, as he was not very well. Arrived at home June 10; June 17 felt poorly; tongue coated, no fever, pulse not quick. For ten days he was cared for by his wife. Suddenly, on June 27, delirium came on, and a nurse was called. For next five days pulse 60–70, low, irregular fever, delirium. During the night of July 1 and 2 he became much worse, respiration was stertorous; at that time pulse 80. He waved the right hand constantly, and could wave the left a little; moderate Kernig; no knee-jerk; pupils both rather large.

Paralysis left side of face, left arm and left leg. Heart negative; lungs negative; Widal negative. In a few days the pulse became very rapid and death.

Autopsy. — Tuberculous meningitis, with exudate the most prominent feature, most marked at the base; marked flattening of convolutions from increase of subdural fluid. Spinal cord negative; thoracic organs not abnormal, except a few miliary tubercles at one lobe. Lymph nodes, mesenteric, bronchial, aortic and cervical showed no evidence of tuberculosis.

This case I report in detail as careful search was made for evidence of a chronic tubercular process, which might be the starting point of the acute tuberculosis. No such lesion was found.

CLAUDIUS' IODIZED CATGUT.

BY HORACE BINNEY, M.D., BOSTON.

THE sterilization of catgut sutures and ligatures by immersion in an aqueous solution of iodine was first brought before the public by Claudius of Copenhagen in the "Deutsche Zeitschrift fur Chirurgie" for 1902.[1] A second article by him appeared in the same publication, in the following year.[2] In this country, attention was first called to this new method of sterilization by Dr. Nicholas Senn.[3] The most recent discussion of the subject is an article by Martina of Gratz.[4]

The improvement during the past few years in the preparation of sterile catgut has shown itself in the comparative rarity, at the present time, of abscess following aseptic operations. The number of surgeons must, however, be small whose experience does not include cases of abscess where the catgut used seems alone to blame. It is also a well-known fact that cultures taken from many of the commercial preparations of catgut sutures have not infrequently shown the material to be infected.

An example of such bacteriological tests is the work of Dr. Jouett, for Dr. Hildreth of Cambridge, Mass., done during the past year. A résumé of his experiments with catgut, prepared by a number of different firms, is, through the courtesy of Dr. Hildreth, here given:

Number of specimens examined	18
Positive growth obtained in	9
In infected specimens growth appeared in .	24–48 hrs.
Number of cases in which a coccus was found	6
Number in which a bacillus was found . . .	3

The precise character of the organisms was not investigated and the question as to their pathogenicity is unsettled.

Another example of less significance than the above is an investigation by the writer of a small amount of catgut on which suspicion fell. Out of ten samples of chromicized gut, positive growths was obtained in three cases, appearing in from two to seven days. The bacteria found were cultivated on the ordinary liquid and solid media and in one case showed characteristics of the *Bacillus mesentericus vulgatus;* in a second, those of the Hay bacillus. In the third case a spore-bearing bacillus was found which was not identified. The first two are known to be non-pathogenic spore-bearers, and among the most resistant to sterilization of all bacteria. That the third (unidentified) was non-pathogenic was inferred from its failure to grow on blood serum.

What conclusion may be drawn from these experiments? Of course, the question of technique and possible contamination of the catgut and cultures during the course of tests at once arises. But, allowing that such accidents did occur, it is unlikely that in experiments carefully conducted the percentage of positive growth would be as high as 50% in the one case and 30% in the other. Moreover, the variety of the organisms found argues against contamination, during

[1] Vol. lxiv, p. 489.
[2] Vol. lxix, p. 462.
[3] Journal of the American Medical Assn., xl, p. 817, 1903.
[4] Deut. Zeit. f. Chir., lxx, p. 141, 1903.

the test, in all cases. We may, therefore, conclude that certain commercial preparations of catgut are not invariably sterile and are, therefore, a source of danger in operations. While the non-pathogenic character of the organisms in three of the above cases suggests an absence of danger to the patient, we cannot accept this, for the presence of such bacteria in a wound undoubtedly favors the growth of any other bacteria which are present in, or accidentally enter into, the tissues during operation.

The above experiments emphasize the need of a method of preparing absolutely sterile catgut — one that can be always trusted.

In general, it may be said that the simpler the method of preparation of sterile catgut, the better the results, because the risk of accidents is less and, needless to say, the cheaper the product. The efforts of most manufacturers to supply an absolutely sterile article have elaborated rather than simplified the methods of preparation.

One of the newer methods for sterilization is the cumol method.[5] In this the gut, arranged in a convenient form, is put through a process of drying, is treated with cumol and again dried at high temperatures, the whole process requiring more or less constant attention for at least five hours. Gut prepared in this way has been shown to be absolutely sterile, but the method, besides being complicated, is expensive, the apparatus costing at least $40.00. The other methods in common use are less expensive, but it is a well known fact that they are more or less complicated; hence the need of a simpler method. This need seems to have been largely filled by Claudius' iodized catgut.

A synopsis of the method is as follows: Raw catgut wound on glass spools is placed directly into the following solution: Iodine, 1 part; potassium, 1 part; water, 100 parts.[6] The bottle is labeled and dated. Claudius states that after eight days the gut is ready for use and may be kept in the same solution and bottle. Through the action of the iodine solution the gut becomes deep black in color, completely sterile, antiseptic, pliable, and easy to tie. Immediately before using, Claudius recommends rinsing the gut in a 3% aqueous solution of carbolic acid or in any sterile fluid, to remove the surplus of iodine solution. The antiseptic action of the latter solution is demonstrated by Claudius by numerous tests in which he found that staphylococci were killed after three minutes' exposure to the solution, anthrax spores after twenty hours. Careful experiments with gut which had soaked for eight days in the solution showed it to be invariably sterile.

Dr. Senn[7] has used catgut prepared by this method with results so far entirely satisfactory, but I have not learned of his yet having published a detailed report of his personal experience with it.

[5] Miller: "The Sterilization of Catgut." Johns Hopkins Medical Bulletin, September 1900, p. 225.

[6] KI is dissolved in a small amount of water, to which the pulverized iodine is added then diluted with water to the above strength.

[7] Journal American Medical Association. (*Loc. cit.*)

The writer, desiring to test sterilization by iodine of a raw commercial gut, which is extensively used by eastern surgeons, made the following experiment. Raw gut was cut into pieces about six inches in length, soaked in the iodine solution for one week and then placed in bouillon tubes. In eleven cases the gut was soaked in two changes of sterile salt solution twenty-four hours each, to remove the iodine. In three cases this was omitted. In every case there was no growth of bacteria at the end of ten days. Control cultures to determine the presence of bacteria or spores in the raw gut were not found practicable because of the difficulty of completely removing the antiseptic agent used to kill surface bacteria, without recontamination. In the attempts made a trace of the antiseptic was invariably carried in the gut when planted in the culture medium, sufficient to inhibit all growth.

In order to determine the penetrating power of the iodine and thus prove that bacteria or spores in the substance of the gut, as well as on the surface, were destroyed, the following method was employed. Raw gut was macerated thoroughly in water, placed in bouillon cultures of the *Bacillus mesentericus vulgatus* for ten days and, at intervals of three or four days, was thoroughly triturated with a glass rod. The gut, impregnated with bacteria and spores, was then transferred to the iodine solution and soaked for one week. It was then removed and soaked in sterile water for two or three days, to remove the iodine, after which it was planted in bouillon. At the end of sixteen days, in every case there was no growth, proving the effective sterilization of the gut by the iodine solution.

In a similar way Martina tested gut which had been soaked in bouillon cultures of anthrax bacilli. The gut was dried, placed in the solution of iodine and potassium iodide for varying lengths of time, and washed and transferred to culture media; specimens exposed to the I. K. I. solution for forty minutes or longer gave negative results in agar, gelatine and bouillon. He further demonstrated the antiseptic property of iodized gut by placing pieces which had been drawn repeatedly through the unsterilized hands in various culture media. In no case did any growth of bacteria appear. The same test with cumol and sublimate-alcohol catgut gave positive results. He also placed pieces of the iodized gut in culture media in which various kinds of bacteria were then planted. The presence of the iodine in every case inhibited the growth of bacteria for a considerable distance around the gut, showing that the iodine was to a certain extent diffused into the surrounding medium.

Owing to the volatile nature of the iodine, the solution tends to become weaker the longer it is kept. Martina used solutions which were three weeks or more old. He states that the probable limit at which the solution can be safely used is three months. The writer in most of the cases referred to above used solutions from two to four weeks old. It is probable that if the solu-

tion is kept in a tightly corked bottle, and does not become transparent, it may be safely used until the end of four months.

Durability. — From experiments with rabbits and a few clinical tests it was found that the iodized gut corresponded closely with plain catgut in the time required for absorption. Claudius found it was absorbed more slowly than carbol-alcohol catgut when used as a skin suture, requiring twelve to sixteen days. Martina made extensive experiments with rabbits and found the gut entirely free from iodine, much swollen and quite fragile after ten days. He concluded that in cases where a great strain was to be put upon the sutures, the iodized gut was not applicable, since its strength after eight days was not sufficient. In hernia operations he does not advocate its use for the suture of the fascia. Other surgeons, whom Claudius quotes, have had no unfavorable results from its use in similar cases. Martina is also opposed to its use in suture of tendons. In such tissues, of slow healing properties, any rapidly absorbable suture would naturally be unsafe, if the parts were under any especial tension. The cases in which the iodized gut prepared by the writer was employed are but nine in number, in eight of which the catgut was used on the fascia in closing the laparotomy wound, and in every case, the wound healed in a satisfactory manner. No tests were made as to the absorbability of catgut sterilized by iodine after being previously chromicized, nor has it been used clinically. From a few experiments it appears, however, that this method of sterilizing chromicized catgut is an effective one.

Antiseptic Action in the Tissues. — Martina showed experimentally that the antiseptic property of the gut lasts about forty-eight hours, and it is probable that this holds true for sutures placed in human tissues. Thus, any bacteria which might adhere to the sutures during handling, and become introduced into the tissues, must be destroyed by the action of the iodine. This is, doubtless, the strongest reason for the good results obtained from the use of iodized catgut.

The absorption of iodine from the suture naturally suggests the possibility of toxic effect. The quantity of iodine absorbed from the sutures, even in a case where a large number of ties are used, such as a dissection of the breast and axilla, has never been found large enough to cause any poisoning. Its only action appears to be local as shown by slight reddening of the skin, which according to Martina lasts for four days, when the gut is used as a skin suture.

Strength. — Claudius found that iodized gut after soaking for one week in the solution was stronger than ordinary catgut prepared by other methods, and that the strength was retained until the end of six months. Gut which had been soaked longer became brittle and therefore unsafe. He also considered the strength of the gut to be increased by washing in a three per cent carbolic solution immediately before use. With this observation, Martina does not agree, nor do the writer's experiments bear it out. Martina prefers an iodine solution of one half the usual strength to the carbolic solution, for the purpose of rinsing the gut. The writer found that gut kept in watery solutions was inferior in strength to gut which had been transferred to an alcoholic solution previous to use. The question of preserving the catgut in an alcoholic solution naturally arose, and various antiseptic substances dissolved in alcohol were tried. Corrosive alcohol was found satisfactory as far as preservation of the strength was concerned, but iodine is rapidly absorbed from the gut by this solution, and it therefore becomes a plain catgut, and antiseptic action in the tissues is lost. An alcoholic solution of biniodide of mercury was tried and found to be highly satisfactory, since there is but little tendency for the iodine to be absorbed out of the catgut. The best results were obtained by rinsing the catgut (after its soaking for one week in the iodine solution) in 95% alcohol, to remove the superfluous water, then placing the gut in a solution of biniodide of mercury, one part; 95% alcohol, one thousand parts; glycerine, twenty parts. Gut preserved in this solution retains the iodine well, and is stronger than that preserved in watery solutions. The fluid, being antiseptic, permits any catgut not used during the operation to be returned to the bottle without resterilization. This, of course, applies only to clean operations. Any handling of suture material with dirty hands or gloves would, of course, endanger the sterility of the gut. Gut soiled in this way may, however, be safely used after resterilizing in the iodine solution.

The longer the gut has been kept in the solution of mercuric biniodide the stronger it appears to become, and for this reason the gut which has been but recently sterilized may be found of insufficient strength. If, however, the spools are allowed to stand in the air before using, for fifteen minutes or more, the gut becomes very strong and of a convenient consistency for tying. It was found advisable in every case to remove the suture material from the solution at the beginning of the operation. It was then unwound from the spools and cut into convenient lengths, laid on the instrument table and covered by a sterile towel. The above procedure gave most satisfactory results.

The preserving solution of biniodide of mercury is stable and has no unfavorable action on the catgut, which may therefore be used safely after keeping for a long time. In several cases gut which had stood for two months was used and found thoroughly satisfactory. It can probably be safely used after a much longer period.

Clinical Results. — The detailed reports of a large number of cases in which iodized catgut has been used by foreign surgeons with the best results may be found in the articles above referred to. A single instance of its successful use, mentioned in the second article by Claudius, was in the practice of Dr. Schon, who used the

iodized catgut in seventeen dissections of the breast and axilla with a perfect healing in every case. This operation is, as he states, probably the best test of catgut, owing to the large number of ligatures employed, and the comparatively poor circulation in the tissues about many of the ties.

The catgut prepared by the writer was employed in the following cases, which were operated upon at the Baptist Hospital, Brookline, by Dr. Hugh Cabot. Catgut of size No. 1 was used throughout: Interval appendix, 3 cases; interval appendix with myomectomy, 1 case; amputation of the breast for sarcoma, 1 case; gastro-enterostomy, 1 case; ovarian cyst, 1 case; varicose veins of leg, 1 case; cholecystectomy, 1 case. These cases were operated upon during the last eight months, and in every one the healing of the wound was satisfactory. Up to the present time the result, so far as suture material is concerned, is perfect.

Cost. — Finally, a word is to be said as to the cost of this method of sterilization. All of the ingredients of the solutions are inexpensive, and the solutions can be safely prepared by any apothecary, or, if necessary, by the surgeon himself. The exact cost has not been figured nor the relative cost compared with other preparations, but it is certainly very much less. The fact that gut which is not used during operation may be returned to the stock bottle is alone a source of considerable economy.

CONCLUSIONS.

Catgut prepared by Claudius' method is superior to other catgut in that: (1) It is invariably sterile. (2) It is readily absorbed in the tissues. (3) The ease and simplicity of its preparation enables the surgeon to prepare his own sutures with a minimum of trouble. (4) It is comparatively cheap.

CONCERNING THE DANGER OF INFECTION TO THE ATTENDANTS OF TUBERCULAR PATIENTS.

BY LOUIS FAUGERES BISHOP, A.M., M.D., NEW YORK,

Physician to Lincoln Hospital, New York (including the Phyllis Pavilion for Consumptives).

THERE is one point that I would like to take up, and that is the danger of contagion of pulmonary tuberculosis.

It is not very long ago since pulmonary tuberculosis was not considered an infectious disease; in fact, it was not thought that one person could get it from another. The opinion was held that it arose from within the body, and that if people suffered it was a matter of fate. The cause of it was not understood. This belief persisted for a good many thousands of years and the general opinion was that consumption was not an infectious disease.

We do not know the cause of scarlet fever or measles as well as we know that of tuberculosis, and yet there never was a time when it was doubted that scarlet fever and measles were contagious, the reason being that there was the evidence that when people came into contact with these diseases they contracted them. It has, however, been observed all these years that people lived in the house with consumptives and were intimately associated with them and yet did not uniformly get the disease, hence the belief arose that it not was a communicable disease.

When consumption was found to be a germ disease like typhoid fever and others we jumped to the conclusion that it was of necessity contagious. This is, however, not strictly true. If any of us have charge of a case of measles and we have not previously had the disease, we are liable to get it, but we can take care of many cases of consumption and be exposed to infection and yet not get it. With measles we would not escape once in a thousand times; that is, everyone is liable to measles unless he has had it and is protected against the disease, while with tuberculosis it is not necessary to have it and we are not uniformly liable to get it. This is founded upon the fact that no one enjoys immunity against the poison of measles, whereas most people enjoy an immunity which protects them in the case of slight infection with tuberculosis; that is, most people are in the same position toward tuberculosis as if it were a disease that protected against itself and they had had an attack. All of us in the city take in the germs of tuberculosis every little while. If the dust that flies about the streets on a windy day be analyzed the germs of tuberculosis will be found; indeed, there will be fewer tubercle bacilli found in the tubercular ward of a hospital than in the air of a dusty street, because in the tubercular wards there are no carpets or dust to carry the germs, while in a crowded street all conditions are favorable. So, even though we all of us at some time inhale the germs of tuberculosis we do not get tuberculosis because we enjoy a natural immunity against it. The tubercle bacilli can be introduced into the human body but there will, ordinarily, be no ill effect. There is one exception, and that is in the case of a very severe infection if the person is inoculated with the germs of tuberculosis repeatedly and the natural immunity temporarily broken down, but even then if the individual is not susceptible he will throw it off.

The germs of consumption are so widely distributed that a large number of people once in a while are so badly infected that the disease takes a start. They are sick for a little while but the condition is not recognized and the lesions heal and they get well. The only way we know that this happens is because the lungs of those dying of other diseases are examined and those who make a great many post-mortem examinations find that a large number of persons have at some time or other had a slight degree of pulmonary tuberculosis and have recovered without ever knowing that they had it.

I scarcely consider it fair, therefore, that tuberculosis should be put in the same category with

other contagious diseases, because it is only contagious in the sense that it may be transmitted from one to another, but is not contagious in the sense that the average person is liable to catch it. It is only contagious to those who are susceptible to it. This is a very important point, because in it lies the principle of the only treatment known for tuberculosis, and that is to restore to the individual the natural immunity which he enjoyed before he became infected and this is best accomplished by measures directed to the system in general.

There is no specific remedy for tuberculosis, and I am not sure that there ever will be, but some day it is possible that we may learn some better way of restoring this individual immunity. It has been found by experience that if a person not too far advanced in tuberculosis can be put in the open air and kept there day and night in any climate, that this treatment with proper feeding has a strong tendency to restore the natural immunity, and the result is that the lesion heals in most people who are infected slightly and in some who are quite severely infected. The whole thing comes down to a matter of susceptibility; if we are susceptible to tuberculosis we can hardly escape, while if we are not susceptible we can scarcely get it if we try.

As far as danger in taking care of tuberculous patients is concerned, this is practically nil. I think that if anyone working among tuberculous patients who uses ordinary care gets the disease he would have acquired it under other conditions.

Clinical Department.

LOCAL CONDITIONS IN THE RESPIRATORY TRACT MODIFIED BY GENERAL FUNCTIONAL OR ORGANIC DISEASE.

BY FRANCIS P. EMERSON, M.D., BOSTON.

LOCAL measures have been carried so far and have accomplished so much for the relief and cure of chronic catarrhal conditions of the respiratory tract that one does not need to urge their importance nor to reaffirm belief in such rational methods. It is not to detract from these brilliant results that I try to emphasize some general principles that seem in danger of being overlooked. We have all reached the point where it is admitted that no examination of the respiratory organs is complete that does not include the air tract as a whole, but does this mean the search for mechanical obstructions or the sequelæ of acute inflammatory processes only? Drainage can be established and obstructive lesions overcome to the temporary gratification of our patient, but is there not a local function to be preserved and also a relationship between it and general functional and organic disease? The term "specialist" can only be used relatively, because the result of minute investigation of any organ in its physiological and pathological aspect is to lead us to the broader consideration of the modifying influence upon it, of habits, environment, climate, seasons, occupation, heredity, age, etc., as well as its relation to other organs. This would seem to be a self-evident truth did not the question come up for discussion at a recent meeting of a national laryngological society as to whether the rhinologist was ever justified in prescribing even a laxative without the consent of the general practitioner. Every man who operates in the nose often must have noted the difference in reaction between the patient who leads an active out-of-door life and the one of sedentary habits. In the same way the man or woman with chronic constipation, indigestion, rheumatism, or gout will show an individual reaction that is not represented by the amount of trauma or the virulence of an infective organism. Normal excrementitious products may be retained within the body so that there results an incomplete chemical metabolism, or we may have an acid intoxication or the formation of leucomaines. The retention of such by-products may cause a chronic pharyngitis, an enlarged inferior turbinate or be one of the causes of a general arterio-sclerosis indicated locally by prominent tortuous vessels at the base of the tongue. Alcohol and chronic secretory disturbances of the stomach may for a long time produce local throat trouble, preceding marked symptoms in other organs.

"Taking cold" may result from reduced immunity due to over function of the larynx or from excessive heat or debauch so that pathogenic organisms of the throat become active, as well as from the lighting up of a subacute rhinitis from the chilling of the surface of the body. The prephthisical anemia of the larynx is an early local manifestation of a general trouble which all recognize.

A violent epistaxis may be the only symptom of a serious organic kidney or cardiac disease. Instances might be multiplied, but the object of this paper is not to exhaustively point out all the local conditions that simply indicate a general disorder or are associated with it, but to emphasize the importance of studying the patient as a whole so that when the local condition has been remedied general medicinal measures may be carried out in conjunction with the family physician to prevent a recurrence. Even chronic follicular pharyngitis is probably the sequel of changes resulting from hypertrophic disease in childhood and associated with the so-called lymphatic tendency. The chronic form we often hear spoken of by the older practitioners as throats of debility. Here the general lymphatic tendency needs to be studied on broad lines as well as local measures instituted.

CASE I. Miss M. S., single, school teacher, age twenty-five. Referred to me in 1901 for hay fever. Nervous temperament. Was anemic two years. Digestion good. No especial sickness but is always nervously exhausted, especially at the end of her school year. Nose always troubled her but two years ago had sore throat and has been worse since. Hay fever comes on in June and lasts until September then skips one month and returns to last all winter. A large horizontal

ridge was removed from the left naris and the naso-pharynx treated. Freedom from hay fever one year when she returned as bad as before. Adrenalin was prescribed and a specimen of urine requested which on two analyses gave specific gravity 1008. Quantity 2 qts. Urea 1%. Albumen and sugar absent. Her symptoms immediately subsided under adrenalin and she was referred back to her physician with the analyses and suggestions as to her general condition. Whether she remains well or not, the importance of a stable nervous system from a good physique is conceded as probably one of the factors in the triad which go to make up the symptom-complex which we call hay fever.

Case II. Mr. A., school teacher, American, forty-seven years, 150 lbs.

Family History. — Father died seventy, grippe. Mother died eighty, always well. Two brothers and one sister. One brother and sister have rheumatism.

Past History. — Patient had inflammation of the bladder six years ago of three weeks' duration. Grip ten years ago. Indigestion or so-called bilious attacks frequently. As a boy had sick headaches. Left wrist has pained him since fall of 1903. Throat sore and pharynx red, horizontal ridge through left inferior meatus. Septum to left and at upper third is in contact with the middle turbinate. Naso-pharyngitis and laryngitis. Larynx malformed from early struma. Uvula large and glistening. Croupy cough and embarrassed breathing as through a sieve. Tongue heavily coated and bowels inactive. Much prostration. He remained under my care through the winter, and, after the acute symptoms subsided, attended to his usual duties but having constant subacute exacerbations until summer when he went as usual to the seashore working about his summer place but failing to be benefited as usual. As the season was very wet I suggested that he go back into the mountains which he did but returned in the fall in poor condition. The ridge in the left nose had been removed but no attempt was made to set up his septum owing to his bad general condition. His bowels had been regulated and beside the local measures he had been given tonics with poor results. At this time examination of the urine gave specifiic gravity 1024, strongly acid. He was given lithia grs. v T. I. D., advised to box twice weekly with sufficient clothing to make him perspire followed by a cool sponge bath, sleep in a cool room and take a cold bath daily. The diet was regulated, the ingestion of water increased and the temperature of the house lowered to 64°-68°.

Nov. 28. — Urine 2 qts., specific gravity 1017. Urea 1.13%. No albumen, although he still has his deviated septum he is doing his work easier than usual and has been free from any but a slight cold for the last three severe winter months and keeps improving. It is still necessary to use an alkaline nasal wash twice daily and probably will be until the nasal condition is corrected, but his improved general condition has modified the activity of the local process and makes it easier to control.

Since writing the above his left middle turbinate commenced to show myxomatous tissue along its anterior border, and later a fully developed polypus necessitated its removal. This was apparently an ethmoiditis from grippe.

Case III. Mr. L. S., referred by Dr. —— in November, 1903; merchant, American, fifty-four years, weight 185. Smoked excessively since eighteen years of age until one year ago. Throat trouble fifteen years. Uses no stimulants. No catarrh. Is large meat eater three times daily and drinks three glasses water per meal. Never sick except typhoid fever at fifteen years. Throat begins to trouble him in the fall and lasts through the winter. Painful and accompanied by a hacking cough.

Family History. — Father died seventy-three, chronic rheumatism. Mother died sixty-one, apoplexy. One brother well. Three sisters well.

Examination. — Chronic pharyngitis. Large amount lymphoid tissue at the base of his tongue and prominent blood-vessels. Upper naso-pharynx negative.

Urine. — Specific gravity 1024. No albumen. Urea 1.77%. Uric acid marked.

Beside local treatment the nitrogenous food was restricted and he was given Carlsbad Sprudel, one teaspoonful in a glass of water on rising, with an occasional dose of calomel and citrate of lithia grs. v T. I. D. He continued to improve steadily and at the end of two weeks volunteered the information that he was getting over the feeling of exhaustion at night that had troubled him so that he felt like lying down as soon as he returned from business and that his throat was entirely free from pain. Here the pharyngitis seemed to be worse in the fall from the diminished action of the skin and the increase of nitrogenous food.

Case IV. Mr. K., referred to me in 1899 by Dr. ——; Irish American, merchant, forty years. Has smoked 3 to 5 cigars daily. No stimulants.

Past History. — Tonsilitis, quinsy. Bronchitis frequently. Grippe, pneumonia, typhoid at twelve years. Bowels inactive.

Family History. — Father died sixty, stoppage of bowels. Mother died sixty-four, grippe and meningitis. Three brothers well. One sister well.

Examination. — Right naris. A horizontal ridge running well back on to the vomer. Right middle turbinate shows dried secretion on its anterior border and is close to the septum. Right sphenoid carious. Ridge was removed and local treatment instituted for several weeks. The following winter he had some bronchitis and went south. 1901 and 1902 his history was one of continued bronchitis and naso-pharyngitis until April, 1903, when after a change of flannels he took cold and examination showed so much puffiness over the left arytenoid with a general dark red appearance of the whole mucous membrane that I sent him home and saw him again in the evening when the edema had extended to the other side, and during the night the larynx was scarified twice to relieve his respiration. He recovered very slowly and on coming to the office a careful examination showed the nose and upper pharynx not inflamed, but as the sphenoid was bare the anterior wall was broken down to relieve the dropping posteriorly. A previous examination of the urine had given a specific gravity of 1031. Quantity, one and a half pints. A few crystals uric acid. No albumen. His physician had been aware of his condition but as the patient was a man with large business interests he could not be prevailed upon to follow directions for physical exercise until his last attack which so frightened him that he commenced systematic horseback riding, cool bathing, long walks, etc. General medication was directed toward his concentrated urine with noticeable effect upon his larynx which improved at once in becoming less sensitive to changes of temperature and more free from unpleasant sensations which had annoyed him since his acute attack. The throat here strongly suggested an incompetent kidney.

Case V. Mr. K., referred by Dr. —— in April, 1901; American, teacher, forty-six years. Has always had a persistent cough following every cold.

Examination. — Slight cartilaginous ridge well for-

ward in both nares. Naso-pharyngitis. Tonsils enlarged. Adenoid tissue at the vault and in Rosenmuller's fossæ. Lymphoid tissue extends laterally from base of tongue up to epiglottis and is continuous with that at base of tonsils. Glandular tissue at base of tongue very prominent which accounts for his long continued coughs. Chronic indigestion. The enlarged glands at the base of the tongue were cauterized and the lymphatic tissue in the vault and fossæ removed as well as that lower down about the epiglottis. He continued in good condition until February, 1903, when he reappeared with a painful pharynx, without any naso-pharyngitis above. He was referred back to his family physician with suggestions in regard to his digestion. A test meal showed chronic secretory trouble which was corrected with benefit to his throat.

The above five cases show that judicious local treatment was necessary to their restoration, yet they also illustrate the point that one must have a broad outlook as these conditions represent no one disorder but chronic functional or organic disturbances of metabolism which aggravate and tend to recurrent exacerbations of the local disease.

GERMAN MEASLES.

BY F. H. MONTGOMERY, M.D., DANVILLE, KENTUCKY.

THE Clinical Department of THE JOURNAL of April 14 contains an article entitled "Concerning German Measles" by Dr. Chas. W. Townsend, which I have read with much interest and which induces me to submit to you the following clinical experiences:

CASE I. A young lady, sixteen years of age, developed a rash the thirtieth day of January. There were no prodromes, a rise of less than one degree of temperature, only slight malaise and some enlargement and tenderness of the posterior-cervical glands. The eruption lasted two days. On Feb. 13 I was again called to see her when she gave a history of having felt badly for three or four days with marked catarrhal symptoms and considerable cough. Temperature 101. She had a typical eruption of rubeola over face, chest and back. This persisted four or five days and disappeared leaving her in good condition. She had no sore throat in either attack.

CASE II. A child two years of age. After three or four days of catarrhal symptoms this child, on Jan. 23, developed an attack of broncho-pneumonia of the congestive type and had several convulsions. Both lungs became filled with liquid rales, the patient became somewhat cyanosed and fell into a condition of semi-coma. Temperature at this time was 105½ (taken in the groin). He rallied from this condition and during the following night broke out with a typical rash of rubeola. This patient was seriously ill for three weeks, the pneumonia producing grave anxiety for a fortnight after the disappearance of the rash. On March 6, after having been out of bed for some ten days, he developed a rash with more of the characteristics of scarlatina than that of the former attack. He had no prodromes, his temperature did not reach 100 F., he had no sore throat and the rash disappeared in less than two days. The post-cervical glands were enlarged and tender.

CASES III, IV AND V. All were members of the same family. I attended them during well marked, uncomplicated attacks of rubeola from Jan. 23 to Feb. 3. On March 21 one of them developed a rash similar to that described above, having had no prodromes, and was followed in a few days by its development in the other two. The source of infection in these cases was undoubtedly case No. II, as they were next-door neighbors and playmates.

CASE VI. A girl of about twelve years of age on Feb. 12 developed a rash, having had no prodromes. Temperature 99½, post-cervical glands enlarged and tender. No catarrhal symptoms. On Feb. 27, after the usual prodromes, this patient developed a well marked attack of rubeola. An interesting point in this case is that I attended her during a well marked attack of scarlatina in the spring of 1898, when the symptoms were all so characteristic and the source of infection so well known that there was no chance for error.

CASES VII AND VIII. Two children of the same family, cousins of case VI and exposed to her on Feb. 12 and 13. On Feb. 24 one of these, without prodromes, developed a rash attended by slight temperature and enlargement of the post-cervical glands. On Feb. 28 the other child developed a similar condition, and a few days later their mother (who had had rubeola) went through the same character of sickness. This family moved to a neighboring state, but just prior to their removal these children were exposed to case IX during his attack of rubeola, and I have recently learned that they both developed this disease in about ten days after exposure.

CASE IX. Cousin to VII and VIII and visiting in the same family. Was exposed to VII and VIII and to their mother during their attacks of illness. On March 16, without prodromes, developed a rash accompanied by slight temperature and enlargement and tenderness of the post-cervical glands. He had absolutely no sore throat. On March 6 played with a child who had the cough and catarrhal prodromes of rubeola, and on the twenty-third was thoroughly broken out with the typical rash of this disease.

During the period covered by these cases there was no scarlatina reported to the authorities of this town, and I could hear of none, but there was an epidemic of rubeola and I am confident of Rotheln.

The following points in this series of cases are interesting:

(1) The occurrence of two attacks of eruptive disease in each of these nine cases within the duration of a few weeks.

(2) The fact that one of these attacks could be absolutely diagnosed as rubeola.

(3) The fact that the other attack did not have the initial chill or vomiting of scarlatina, did not have any sore throat, and did not desquamate, and the period of incubation where it could be determined was too long for scarlatina — being from twelve to twenty days.

(4) That case VI had previously had an attack of scarlatina contracted from a known source and followed by marked desquamation.

In conclusion I would say that I attended during this period a number of other cases of typical rubeola and also a number of cases of this very mild eruptive disease as they were both epidemic in this community, but report only those cases that had an attack of each.

Medical Progress.

THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND HAYWARD W. CUSHING, M.D.

A METHOD OF ANESTHESIA DURING OPERATION ON THE FACE.

L. Ombredanne[1] recommends the following method, the advantages of which are that the inconvenience to the operator of the usual apparatus and the danger of wound infection from the same are avoided. The apparatus consists of a can-like receptacle, containing a sponge fitted with a movable perforated cover and a tubelike "nose," to which is fitted a flexible rubber tube, which connects the apparatus with a metal tube, which perforates a piece of soft rubber which is placed between the patient's teeth and lips. When used, the sponge in the "can" is saturated with ether, the patient's nostrils "tamponned," the soft rubber mouthpiece placed in the proper position in the patient's mouth and the ether vapor is inhaled. By lifting the lid of the "can," the desirable portion of air can be mingled with the ether inhaled by the patient. The method is another modification of the practice of inhaling ether without an apparatus which, more or less, covers the face and is held in position by the hand of an anesthetizer. This particular device would not seem to have all the advantages of the method described in a recent report of the Boston City Hospital.[2]

IGNITION OF ETHER VAPOR IN PRESENCE OF A CLOSED ELECTRIC LIGHT.

D. Murray makes a short but interesting report of a case where an explosion occurred under the condition above stated. The etherizer was testing the corneal reflex. The patient was lying prone and the head was turned around so as to bring it directly under an electric lamp. At this instant the ether vapor ignited and the patient was slightly burned. The lamp is described as a "closed" light.[3]

In this connection the cause of a recently noted gasolene explosion is of interest. The patient was cleansing an article of clothing with gasolene in a wash basin on a cold day. Another person touched the victim of the explosion with her hand. The contact produced an electric spark and an explosion of the gasolene vapor followed, resulting in severe burns and a fire in the house. Although no similar accident with ether is on record as far as we remember, still the above incident suggests it as a possibility.

PROGNOSIS IN FRACTURES OF BASE OF THE SKULL.

Graf[4] has compiled and studied the records of the König clinic at the Charite Hospital in Berlin from 1896 to 1902. He has arranged statistically, and according to their relative frequency of recurrence, the different clinical results of cases of fracture of the base of the skull (not only the immediate but also the final condition of the patients).

He collected 90 cases (77 men, 13 women). The most frequent cause of the injury was a fall from a greater or less height (63 cases). The immediate mortality was 21 deaths in 24 hours. On second to third day, 4; 6 on sixth to eighteenth day, 3 of meningitis. The most frequent symptom of the fracture was hemorrhage from the nose, ear and mouth. One ear, 64 times, both ears, 13. Nose and mouth, 39 times. Escape of cerebro-spinal fluid from one ear, only six times. From the nose once. Subconjunctival hemorrhage, 25 times. Postorbital, twice. Of paralysis of cranial nerves, the facial was most frequently noted, 24 cases. This was generally due to hemorrhagic pressure which recurred after absorption of the clot. There was loss of consciousness in 74 cases. In 28 this was of short duration. In 40 cases from several to twenty-four hours; of these latter 21 ended fatally. The pulse was slow and strong in 16. Aphasia in 3. Convulsions in 3.

In 48 patients in whom the after history was learned, the most frequent condition was headache (34). This followed in 8 cases a blow on the head. In 16 patients this was constant and incapacitated the individual for hard work. Twenty-seven complained of vertigo, which was caused in 10 patients by backward motions of the head. Ear noises occurred 16 times. Weakness of memory, 17. Diminished intelligence in 11. Dementia in 2. Abnormal irritability, 15 times. The hearing power was found to be normal in 12 out of 39 patients tested. Four had middle ear catarrh and 20 impaired hearing, due to interference of the sound conducting apparatus. Short clinical histories of the special cases are appended.

TUMORS OF THE RETROCAROTID GLAND.

P. Reclus and M. Chevassu[5] have recently made a contribution to the literature of this subject. The etiology of these tumors is not understood, but they occur in early life; in the few cases reported the affection having been seen between the seventh and thirty-third year. They seem to be made up in most cases, as in that described by the authors, of blood vessels and numerous cells of undetermined origin, the whole enclosed in a capsule. Of slow growth, the patient becomes aware of the existence of the tumor by chance, or after it has gained sufficient size to cause some discomfort; slight pain in its neighborhood in some cases, first calling attention to it. With the head slightly extended, the outline of the tumor may be readily recognized and at the same time it may be seen to pulsate; these pulsations being synchronous with the radial pulse. The tumor occupies the carotid region, embracing the division of the common carotid and the bifurcation of its two initial branches. Its size is said to vary between that of a pigeon's and hen's egg; it is generally soft and elastic, quite mobile transversely, but slightly so vertically and

[1] Gaz. des hôpitaux, 1903, no. 109.
[2] Thirteenth series, 1902, p. 118.
[3] New York and Philadelphia Med. Journ., June 27, 1903.
[4] Deutsche Zeitschr. f. Chir. Bd., lxviii, p. 464.
[5] Revue de Chirurgie, September, 1903.

it may be made to disappear under pressure; though upon withdrawal of pressure it regains its former size within two or three successive pulsations. Auscultation over the tumor may reveal a systolic murmur. The pulsation seen is the most striking symptom, this being synchronous with the radial pulse, non-expansile and disappearing upon compression of the common carotid. The authors state that a positive diagnosis of tumor of the retrocarotid gland may be made in the presence of a single, soft, pulsating, non-expansile tumor of slow development in the carotid region at the level and above the thyroid cartilage. Treatment is surgical, consisting in extirpation of the tumor.

ESOPHAGEAL DIVERTICULA.

In a comprehensive article, G. Riebold [6] states that traction diverticula are very frequent in adults (3.5 % of all autopsies on adults and none in children under fifteen years). Their location is usually the anterior or lateral (more often the right than the left) wall at the level of the trachea; in four cases they were seated 5 to 6 cm. (2½ inches) higher, in one case 10 cm. (5 inches) lower, and in another the posterior wall was involved. In the majority of cases only one is found, but at one autopsy there were as many as nine. They all stand in intimate relation with indurated chalicotic or anthracotic lymph-nodes. The form most frequently encountered is that of a funnel 3 to 6 mm. ($\frac{1}{10}$ to $\frac{1}{8}$ inches) deep, but a large number of variations may be described. The shape of the opening is not constant and the longest diameter is usually directed obliquely upward. All the layers of the esophagus may participate, but usually the mucous membrane is defective. The clinical importance of these diverticula lies in the possibility of perforation and infection of the surrounding tissues. The stagnating food may set up an inflammation and progressive ulceration, or else the gland will suppurate and discharge into the esophagus. The result is an enlargement of the original diverticulum, or a purulent mediastinitis or perforation of the pus into the trachea, bronchi, lung, pleura, pericardium, or vessels. Carcinoma or tuberculosis are very apt to develop upon the scar tissue of an old diverticulum. The diagnosis during life has never been made. The fact that a glandular inflammation is apt to spread toward the esophagus and draw out its walls is best explained by an obstruction of lymph-channels which permits a retrograde transport of germs. Similar diverticula of the trachea and bronchi have also been described, but here the cartilaginous rings offer a much greater resistance than the soft walls of the esophagus. In the second group, the diverticula by traction and pressure, part of the wall of a traction diverticulum is bulged out, or else the entire pouch has yielded and it would be hard to distinguish it from a pressure diverticulum, were it not for the remains of glands and chronic inflammation in the neighborhood, and perhaps the deposit of coal in the walls. This group is rare, and position and etiology are the same as in the preceding group. Lastly, the pure pressure diverticula claim attention, especially since their causation has been a mooted point. It is probable that the pressure of a morsel passing down the esophagus or forced expiratory acts bulge out a posterior pharyngeal wall weakened congenitally or by trauma. The muscle fibers of the inferior constrictor will yield so that a hernia of the mucous membrane can readily take place. After the bag has attained a certain size, the pressure of the contained food will enlarge it more and more. The diagnosis is fairly certain and treatment is also satisfactory; formerly one fourth of the cases died of starvation or aspiration pneumonia, with pulmonary gangrene, but now a large number are amenable to operation, Lower down in the esophagus, especially on its anterior and lateral wall, above physiological stenoses, similar pathological lesions are sometimes seen, and it is likely that here, also, a congenital weakness is at fault.

[6] Virchow's Archiv., vol. 173, no. 3.

DERMOID CYSTS AND TERATOMAS OF THE ANTERIOR MEDIASTINUM.

Dangschat, [7] an assistant in Garre's clinic in Konigsberg, gives practically all the information obtainable on this subject up to date. He reports two cases operated on in the Konigsberg clinic and has collected from the literature forty-four similar cases. Only two of these are from American journals, one reported in 1879, and three others are mentioned from English sources.

Various theories have been advanced to account for the origin of these tumors. The theory of origin by direct embryonic inclusion, by development from the thyroid or thymus or from the gill-slits, Dangschat rejects. The symptoms generally appear at about the time of puberty. The growth usually continues for several years and is much slower than that of sarcoma and carcinoma. Difficulty in breathing is the most important symptom of these dermoids, and with it there is often considerable pain. In a considerable proportion of cases there was cough and expectoration and in a few cases spitting of blood. As the growth increases in size, the prominence of the chest wall is noticeable. Earlier in the disease the picture may resemble that of tuberculosis of the lungs, but at a later stage the diagnosis would lie between pleurisy with effusion, aneurism, echinococcus and actinomycosis. The finding of hairs in the sputum furnishes positive diagnostic proof. In many other cases puncture with an aspirating needle would clear up the diagnosis.

When the history leads to a probable diagnosis of dermoid cyst, operation should be undertaken. Aneurismal bruit and symptoms of inflammation in actinomycosis would probably leave little doubt as to the differential diagnosis from these conditions. The prognosis is absolutely unfavorable unless a timely diagnosis is made and suitable operation undertaken. The operation in most cases necessitates resection of several

[7] Beitrage zur klin. Chirurgie, 1903, xxxviii, p. 692.

ribs, or of the sternum, and evacuation of the cyst and suture of the remaining cyst wall into the opening. The cavity then is scraped with a curette, or treated with caustic, and left to close by granulation. In three of the cases out of forty-four, death followed the operation, in one case from hemorrhage, in the second from infection, and in the third from an unknown cause. The remaining patients were either cured or improved. In several of the cases reported, cavities of very large size resulted from the operation. These can hardly be expected to close without further treatment. He suggests that in such cases these cavities may be obliterated sometimes, either partially or entirely, by turning in large skin flaps from the surrounding parts after the wound was well covered by healthy granulations, or, failing in this, the Thiersch method of skin grafting might be employed.

SPEAR WOUND OF THE HEART.

A most interesting example of this condition is described by T. McArdle[8] where a barbed spear was embedded in the chest, passing through the wall of the left ventricle, but without entering the cardiac cavity, and the patient made a good recovery after operation. The patient was a Soudanese and the spear entered near the lower angle of the left scapula, passed through the chest and projected at a point midway between the left nipple and the midsternal line, about one inch above the nipple. Operation was done. A part of the sixth rib was resected and the spear was found to have penetrated the margin of the left ventricle. This fleshy fragment was divided, the spear withdrawn and the external wound sutured. Restoration of pulse and respiration followed and the man made an interrupted recovery. Interesting points are the slight general influence produced by operative interference with the cardiac muscle, the profound disturbance caused by the change in cardiac position, as shown by the apparent fatal syncope which followed traction on the spear while it was still fixed in the wall of the heart and the peculiar modification of the cardiac sounds produced by the presence of a foreign body in the cardiac wall.

RESUSCITATION BY MASSAGE OF HEART AN HOUR AFTER DEATH.

Dr. Paul Sick[9] reports that a lad of fifteen was being operated on Dec. 13, 1902, at the Kiel clinic, on account of tuberculous peritonitis, when heart action and respiration ceased. Artificial respiration and König-Maas massage of the heart restored the respiration for a single minute or two, but it then subsided again and after thirty minutes the youth was still cyanosed, pulseless, no respiration, the entire body growing colder and colder. The heart was then exposed by a Rotter incision and, forty-five minutes after the first signs of disturbance, massage was applied directly to the heart, supplemented by warm compresses. After fifteen minutes the heart gave signs of life and in fifteen more minutes was beating regularly. Respiration was resumed, the pupils contracted to normal, the color returned and the pulse became good, although rather frequent. The pericardium was then sutured and the thorax flap replaced and sutured over the tampon. Two hours later the youth had regained consciousness and complained of thirst and dyspnea; respiration 60, pulse 144. Under camphor and saline infusion the condition remained about the same for twenty-four hours. The speech was indistinct, hurried but intelligible. Then symptoms of collapse were observed, the dyspnea increased and death ensued after three hours of coma. Signs of slight fibrinous pericarditis were found at the autopsy and of old pleuritis, fresh recent tumefaction of spleen and liver, with tuberculosis of peritoneum and mesentery in an advanced stage. Sick remarks that the resuscitation might have been permanent in a subject less severely undermined. The action of the chloroform on the heart had evidently been magnified by the shock and the altered conditions in the circulation entailed by the laparotomy and evacuation of the ascites.

(To be continued.)

[8] Journ. R. A. M. C., vol. i, no. 2.
[9] Centralblatt f. Chirurgie, no. 36, Sept. 5, 1903, p. 981.

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, Feb. 2, 1904.

DR. JOSEPH FRAENKEL, President *pro tem.*, in the chair.

(Concluded from No. 18, page 488.)

REPORT OF TWO CASES OF TUMOR OF THE PONTO-MEDULLO-CEREBELLAR SPACE (ACOUSTIC NEUROMA) WITH OPERATION.

By DRS. J. FRAENKEL AND J. RAMSAY HUNT.

CASE I. Reported by DR. FRAENKEL; operation by DR. CHARLES A. ELSBERG: The patient was a man, forty-eight years old, a theatrical manager, who entered the Montefiore Home on July 1, 1903. One brother was an imbecile; otherwise his family history was negative. His previous personal history was also without bearing on the present condition. He denied excesses and venereal infection.

About five years ago the patient first noticed that his hearing on the right side was impaired, so that he had to use his left ear when at the telephone. A year later his gait became staggering and uncertain, and he could not co-ordinate his lower extremities at all times. The right lower extremity was the first to be affected. The patient did not notice that he swayed to one side more than the other. Three years ago his gait frequently was like that of a drunken man, and two years ago a transient diplopia was noticed. About the same time the lower extremities became marked spastic, his sight became impaired, his speech became stammering, and he noticed that he was tremulous when writing or performing any other intentional function with the upper extremities. During the last year, occasional insufficiency of the sphincters was noticed and he was unable to walk without assistance. At no time was there any pain, paresthesia or girdle sensation.

An objective examination showed static and locomotor ataxia. Romberg's symptom was present. The patient falls and inclines to the left side. There is slight mental hebetude and occasional emotional explosiveness. There was motor weakness of all four extremities, particularly on the left side; a tactiform unsteadiness of both upper extremities, particularly of the right; loss of position sense in right-sided upper extremity; exaggeration of reflexes, particularly on the left side; Babinsky present on both sides, more marked on the left; marked nystagmus; scanning speech; considerable choked disk, with retinal hemorrhages; deafness of the left ear.

Six weeks before the operation, a paralysis of all branches of the seventh nerve set in, with marked changes of the electrical reactions.

The operation for the removal of the tumor was performed by Dr. Elsberg. The patient unfortunately died from what appeared to be an acute uremia thirty-six hours after the preparatory operation.

DR. CHARLES A. ELSBERG, who did the operation in this case, said that the opening in the skull was made in a rather unusual situation. In most of the operations for a tumor in the posterior fossa, the cerebellum was exposed by the so-called occipital craniotomy, in which the opening was made in the occipital bone somewhere between the median line and the posterior margin of the mastoid, and below the level of the lateral sinus. For tumors situated in front of the cerebellum, as was the tumor in this case, and for tumors in the anterior and lateral parts of the cerebellum there were several objections to this method of exposure:

(1) It was not the shortest route from the surface of the skull.

(2) The manipulations in the removal of the tumor must be done by the sense of touch alone.

(3) Even with the most gentle manipulations the cerebellum was apt to be contused and its tissues lacerated.

(4) In the digital examination of the anterior parts of the cerebellum from the under surface of the organ, the finger must come in frequent contact with the medulla and perhaps the pons, and the great danger from even slight injury to these structures was well known.

Dr. Elsberg said he investigated this subject for the purpose of finding, if possible, a method by which the disadvantages above mentioned would be avoided.

Actual measurements on a number of skulls showed that the shortest distance from the surface of the skull to the anterior edge of the lateral lobe of the cerebellum on the same side was measured on a line which ran along the posterior surface of the petrous portion of the temporal bone, and reached the surface of the mastoid 1 to 2 cm. behind the external auditory meatus. The distance from the outer surface of the occipital bone, below the level of the lateral sinus, to the anterior edge of the cerebellum diminished steadily as the measurements were made more and more distant from the median line. These facts showed that the shortest route to the ponto-medullary space on the same side would be through an opening made in the mastoid process.

If, in the cadaver, an opening was made in the mastoid region and the dura incised, the lateral edge of the lateral lobe of the cerebellum fell away from the posterior surface of the petrous portion of the temporal bone, so that fully one half of that part of the bone could be seen. With only very slight retraction, the lateral lobe could be drawn sufficiently towards the median line so that the auditory and facial nerves could be plainly seen in their course from the ponto-medullary cerebellar space to the internal auditory meatus, and even the ninth, tenth and eleventh cranial nerves could be seen in part of their course in the posterior fossa. The auditory nerve could be cut close to its origin with a fine scissors without touching the pons or medulla. Dr. Elsberg said he had performed the operation on the dead body a number of times and was convinced of its feasibility. In the living body, where the cerebellum was filled with blood, the same conditions would be found, although to a somewhat lesser degree. This had been demonstrated by Krause, of Berlin, in a somewhat similar operation devised by him in a case in which he cut the auditory nerve in the posterior fossa for the relief of a persistent tinnitus aurium.

As was well known, considerable of the lateral parts of the cerebellum could be cut away without causing a permanent disturbance in the functions of this part of the brain. Therefore, this was the part of the cerebellum that could be handled with the greatest safety, and at the same time, could be most easily retracted. From these facts it followed that the approach to the anterior edge of the cerebellum along its outer edge was not only the easiest, but also the route by which the organ was least apt to be injured during the manipulations.

An examination into the anatomical relations of the parts in the posterior fossa would soon make it clear that when the ponto-medullary cerebellar space was approached from the mastoid region along the outer edge of the lateral lobe of the cerebellum, neither finger nor instrument need come in intimate contact with the pons or medulla until the space itself had been reached. It was probable that the correct way to remove tumors from this region was to expose the structures on the central side of the tumor, if possible, and first divide these, and then to work outwards all of the time, away from the pons and medulla. Hence, with this lateral method, the danger of wounding these important structures was reduced to a minimum.

Dr. Elsberg thought it was advisable, in almost all of these cases, to operate in two stages. On Jan. 21, 1904, under chloroform anesthesia, the bone was exposed by a flap of the soft parts, including the periosteum over the mastoid and outer parts of the occipital regions. An opening was then made with the cranial drill, chisel and rongeur, measuring 5 by 8 cm., and extending from above the superior curved line of the occipital bone to within 1½ cm. of the margin of the foramen magnum, and from within 1 cm. of the external auditory meatus to 3 cm. from the median line. In the upper part of the wound the occipital lobe, covered by its dura, was visible, and in the lower part, the right lobe of the cerebellum, covered by its dura. The greater part of the lateral sinus of the right side was thus exposed. The wound was then closed, the flap being sutured back into place, and a voluminous dry dressing was applied.

The patient was considerably shocked at the end of the operation, but he reacted well to stimulation. His condition remained fairly good until the second day, when his kidneys ceased to act and he passed into a uremic condition and died in forty-eight hours.

The skin-flap was turned back about two hours after death and the dura incised. With the head turned to the side, the tumor could be plainly seen at a depth of from 3 to 4 cm. and when the finger was introduced it was found that the tumor could be peeled out with the greatest ease. It seemed probable that had the patient survived the first operation, the removal of the tumor could have been accomplished at

the second operation in a short time and with very little difficulty.

After the patient's death it was learned that he had had an attack of acute nephritis, with general edema, some years before, and although the urine had been carefully examined prior to the operation and had showed no evidence of renal disease, it was just to suppose that long-standing kidney trouble was the probable cause of the acute suppression of urine after the operation.

CASE II. Reported by DR. HUNT; operation by DR. GEORGE WOOLSEY: This patient was a Jewish peddler, forty-two years old. Six years ago he began to suffer from an annoying tinnitus in the left ear, followed by some impairment of hearing. During the past four years he had had occasional occipital headaches, with vertigo. These symptoms gradually increased in severity and were accompanied by cloudiness of vision. For the past six months there has been an unsteadiness of gait.

When he first came under Dr. Hunt's observation, the watch tick was not perceptible with the left ear, and the tuning fork was very faint to aerial and bone conduction on that side. There was paresis of the left seventh nerve, more apparent in its upper branch, with slight quantitative electrical changes. There was paresthesia in the sensory distribution of the left fifth nerve, with objective sensory disturbances. The pupils were unequal, the left being wider than the right. Reactions were present. There was amblyopia and choked discs, and a slow nystagmus in extreme positions. There was hemiasynergia and hemiataxia of the left side. In falling, the patient favored the left, and progression was decidedly to that side. The nuclear reflexes were active, the knee-jerks exaggerated, the left more so than the right. There was no ankle-clonus. The skin reflexes were present; no Babinsky.

The diagnosis of a neurofibroma of the left acoustic nerve was made, and operation was advised. From the known pathological character and relation of the surrounding structures of this variety of tumor in general, it was possible not only to localize the growth, but to state in general terms its situation in the ponto-cerebellar space outside of the brain substance, its possible size and consistency, and its enucleability. Its attachments to the surrounding structures consist only of the leptomeninges, blood vessels and adhesions, and when these are divided it would be possible to lift the growth out of its socket in the brain with ease.

With these data at his disposal, Dr. Woolsey decided on entering the occipital bone on its postero-inferior surface, to the left of the median line and below the lateral sinus. The index finger was inserted through the trephine opening and beneath the left cerebellar hemisphere, coming in contact immediately with the nodular surface of the growth, which was broken up by gentle manipulation and removed in fragments.

There was a tendency for the cerebellar hemisphere to rise into the trephine opening, and this, with the digital manipulation, caused some laceration of its substance, with oozing.

Following the removal of the growth, the respirations of the patient became irregular and shallow, with occasional alarmingly long intervals. The pulse was rapid. The operation, which was done under ether, had required nearly two hours. At 5 P.M., three hours after the operation, the patient's temperature was 102; pulse, 112; respirations, 26. The breathing had improved in character, and the patient seemed to be reacting. Slight clonic twitchings of the left side of the face were noticeable. Death occurred at 1 A.M., apparently of respiratory and cardiac failure, just twelve hours after the completion of the operation.

Permission was obtained to remove the brain only. The outer surface of the dura was dotted here and there with little tufts and excrescences, which proved to be attached to the brain cortex, and when torn away, they left minute depressions, with a punched-out border. Examination of the base showed that the tumor had been almost completely removed, only two small fragments remaining, together with a small blood-clot, scarcely larger than the little finger-nail. The inferior surface of the cerebellum was lacerated, but there was no external evidence of injury to the pons and medulla. The general ventricular cavity of the brain was dilated, showing that there had been a not inconsiderable internal hydrocephalus. Upon splitting the worm of the cerebellum, Dr. Hunt said he was surprised to find a firm, rounded projection from the left side of the floor of the fourth ventricle, corresponding to the site of the tumor. Microscopic sections through the brain proved this to be an extensive edema and hemorrhagic infiltration of the left peduncle of the pons, evidently arising from the region of the lacerated cerebellum, and gradually encroaching on the vital centers of the medulla. This internal pons hemorrhage was probably the immediate cause of death.

DR. GEORGE WOOLSEY said he was much interested in the class of tumors described in the cases reported by Drs. Fraenkel and Hunt, for they were so definitely localizable and could be so readily enucleated that they were very suitable for surgical treatment if they could be successfully exposed. He believed that this could be done. In the case he had operated on several months ago, which was referred to him at Bellevue Hospital by Dr. Hunt, he knew of no previous experience to serve as a guide in the operation. The tumor was approached from behind and the side by removing a large area of bone, comprising all that part of the occipital bone below the superior curved line and to the left of the median line. The opening left only a narrow bridge of bone between it and the foramen magnum and extended forward into the mastoid until the bone became very thick.

Passing the finger beneath the cerebellum, the tumor was felt and removed piecemeal. This necessitated introducing the finger a number of times, and there was some laceration of the lateral lobe of the cerebellum which did not seem of any moment. The tumor was larger than he expected to find it. In another case he would try to pass a forceps along the finger, seize the tumor, enucleate it with the finger and remove it entire.

The plan of operating in two stages, recommended by Horsley and employed by Dr. Elsberg, he thought was most excellent where the exposure was prolonged and much blood was lost. He thought Dr. Elsberg's method of approach had much to commend it, although it was not so much nearer the site of the tumor than the opening he had made as might be inferred. It had the objection that the bone was very thick, so that too much time and perhaps blood was lost in getting through it. In operations on brain tumors it was important not to take too much time in the exposure alone. This objection was obviated by operating in two stages. Dr. Woolsey said the entire operation in his case took no longer, if as long, as the exposure in Dr. Elsberg's case.

After the operation, his patient seemed in good condition and appeared to suffer but little from shock, but symptoms of the latter appeared several hours later, and he failed to rally. On the whole, in another similar

case, he would be inclined to operate in two stages and by the lateral approach suggested by Dr. Elsberg.

DR. GEORGE E. BREWER said that he had been interested in the subject of cerebral tumors for many years. He had twice explored the posterior fossa, in the first instance finding a subcortical cerebellar growth of tuberculous origin, which was successfully removed, the patient making an excellent operative recovery. He died some months later, however, from general tuberculosis.

In the second case the patient succumbed after an extensive bone removal, undertaken simply to relieve pressure. A number of anatomical investigations carried on in the dissecting room of the College of Physicians and Surgeons led the speaker to advocate the plan of opening the skull by removing, practically, all of the bone below the superior curved line to within half an inch of the foramen magnum below, and from the median line to a point half an inch behind the mastoid. By opening the dura, the finger could be easily passed behind the lateral lobe and reach the situation of these tumors at a depth of less than an inch and one half from the surface of the wound. Of course, adequate exposure to remove such a growth would necessitate the destruction of a portion of the lateral lobe; this, however, could be done without serious trouble to the patient, as had been demonstrated in his first case.

It was Dr. Brewer's opinion that speed of operation was perhaps the most important factor necessary to success, as these patients almost invariably died if the operation was at all protracted. He was in favor of doing the operation, when practicable, in two stages. The first operation should consist of the removal of the bone only, which to a certain extent relieved the pressure, and at a subsequent period the dura should be incised and the tumor removed. He thought the primary operation should be done in from twenty to thirty minutes.

DR. HUNT, in closing, referred to a previous communication, published in conjunction with Dr. Fraenkel, in which five cases of tumor of the ponto-cerebellar space were recorded. In that paper, especial stress was laid on the certainty of localization and the enucleability of this group of tumors, and their surgical importance.

In both of the cases under discussion, in which operation was attempted, the diagnosis of an acoustic neuroma was made, and the operative procedure was modified to meet the known anatomical peculiarities of this type of tumor. In Case I the patient succumbed thirty-six hours after performing the first stage of the operation, apparently from shock, although a renal complication could not be excluded. In Case II death was due to laceration of the cerebellum, with resulting effusion of blood into the tissues of the medulla and pons. Both of the operations were prolonged and tedious, and considerable trauma was inflicted in removing the thick occipital bone, and enlarging the trephine opening. It seemed of paramount importance, in exposing tumors in this locality, that the operation be done expeditiously and with great gentleness, as any concussion must be especially effective in this region. The division of the operative procedure into two stages was also to be recommended.

THE ZOOLOGICAL SOCIETY of Philadelphia, according to the *Medical News*, is to make experiments looking toward the prevention of tuberculosis in animals, this disease being one of the most frequent causes of death. An unused house in the garden is to be converted into a hospital where all new specimens will be received and examined.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

MEETING JANUARY, 1904, DR. W. T. COUNCILMAN IN THE CHAIR.

DR. HENRY JACKSON read a paper on

TUBERCULAR MENINGITIS IN ADULTS.[1]

DR. W. N. BULLARD said that he desired to express his full agreement with the writer in regard to the symptoms in the tubercular meningitis of adults. Up to the time of the appearance of the ocular or facial palsies the condition suggests that found in an advanced stage of typhoid fever, but without the special signs of typhoid (rose spots, etc.). Where the paralyses exist it is evident that the affection is of intracranial origin, but even at this stage it is distinguished from the other intracranial affections by its lack of destinctive symptoms. Contrary to what might be expected the deep reflexes are normal. It is not by any means an uncommon affection and in any case of obscure acute or subacute intracranial disease the possibility of its existence should be considered.

DR. P. C. KNAPP had also found that the clinical picture of tubercular meningitis in the adult differed from that usually seen in childhood. There was another form of tubercular meningitis often observed in the adult, which must be so regarded pathologically, although clinically it was quite distinct. In many cases of so-called solitary tubercle of the brain in the neighborhood of the meninges there is often a patch of chronic tubercular meningitis, with perhaps a few miliary tubercles scattered about in the meninges in the vicinity. In such cases the symptoms are those of a cerebral tumor rather than of meningitis.

DR. E. E. JACK desired to say a word from the standpoint of the eye. He had examined quite a number of cases of tubercular meningitis, but had never found tubercles in the choroid. He had, however, seen them in general miliary tuberculosis and it is his impression that they are almost limited to that disease.

DR. J. L. MORSE: While the type of tubercular meningitis in infancy and childhood, as a rule, corresponds to the picture drawn by Dr. Jackson and by most textbooks, it is not very uncommon, especially in infants, to have the disease resemble the adult type as described by Dr. Jackson. I can remember distinctly a number of cases in infants, proved either by autopsy or by lumbar puncture, in which there were not only no marked nervous symptoms, but in which there was no bulging of the fontanelle, no Kernig's sign and no exaggeration of the reflexes. Dr. Jackson spoke of the aid given by lumbar puncture in the differential diagnosis between tubercular and cerebro-spinal meningitis. I cannot agree entirely with his statements. While, of course, in a general way, the fluid from tubercular meningitis is only slightly turbid, it may be decidedly purulent, and while in cerebro-spinal meningitis the fluid is usually decidedly turbid or purulent, it may, especially in long cases, be almost clear. Tubercle bacilli are, of course, rarely found in the fluid of tubercular meningitis, but absence of bacteria does not, however, by any means, rule out cerebro-spinal meningitis, for while the meningococcus is usually present early in the disease it is usually absent later. Dr. Jackson did not speak of the characteristics of the cells in cerebro-spinal fluid in the two diseases. To my mind, the sort of cell is of great importance in diagnosis, as the amount of mononuclear cells predominate greatly in tubercular meningitis, while polynuclear cells predominate in cerebro-spinal meningitis.

[1] See JOURNAL, p. 501.

Recent Literature.

Students-Aid to the Muscular Attachments. Graphic Scheme. Part I. The Upper Extremity. By Errett E. McLellon.

This chart is designed to show graphically the origin and insertion of muscles of the upper extremities of the body. To accomplish this end a diagram of the skeleton is reproduced with the various muscles represented diagrammatically, simply as lines. The chart itself is liberally supplied with explanatory text, and in addition there is a considerable amount of information on general anatomical points. The front of the body is represented on one side of the chart and the back on the other. Anything which helps to fix muscular attachments is certainly of value, and this should accomplish, in a measure this result.

Elements of Surgical Diagnosis. By A. Pearce Gould, M.S. (Lond.), F.R.C.S. (Eng.), Surgeon to the Middlesex Hospital, Member of the Council of the Royal College of Surgeons of England and of the Examining Board for England, Member of the Senate of the University of London. Third edition. Revised and enlarged. Chicago: W. T. Keener & Co. 1903.

We welcome an old friend in this little red-covered book on the elements of surgical diagnosis. We have long wondered why Mr. Gould did not bring the book out again with the additions of modern surgery. This he has done and in a very satisfactory manner. We are very sure that it is a book which will serve a most useful purpose and will be greatly valued by students, physicians and surgeons.

Hypnotism: Its History, Practice and Theory. By J. Milne Bramwell, M.C., C.M. London: Grant Richards. 1903.

Dr. Bramwell has produced a practical book on the theory and practice of hypnotism. He calls attention to the fact that, although many books on the subject have been published in foreign languages, few have as yet appeared in English. He therefore discusses the topic from a general point of view as well as from the standpoint of wide personal experience extending over twelve years. The general aim has been to draw attention particularly to those points which may be of practical value to those desiring to practice hypnotism as a means of treatment. Theories are discussed, but not at great length, and the pitfalls of hypnotic practice are dwelt upon in considerable detail. The value of the book lies largely in its appeal to personal experience. Many cases are reported of the most varied affections with the outcome of suggestive treatment. The discussion is judicial and the book is certainly worthy of warm recommendation to physicians in general, as well as to those concerned particularly in the use of hypnotism as a therapeutic aid. The book is admirably printed and attractively bound. It contains no illustrations. An excellent systematic bibliography is appended which should prove of value to students of the general subject.

The Blues (splanchnic neurasthenia); Causes and Cure. By Albert Abrams, A.M., M.D. 12mo. pp. 240. With 27 illustrations. E. B. Treat & Co.: New York. 1904.

The writer calls attention to a special form of neurasthenia, characterized by paroxysms of depression, popularly called the "blues," which he terms splanchnic neurasthenia. This he believes to be due to a congestion of the intra-abdominal veins, and the chief abdominal symptoms are abdominal sensitiveness, tenderness and enlargement of the liver and intestinal flatulence. This form of neurasthenia can be cured by relieving this congestion by various physical methods, such as abdominal massage, exercises to strengthen the abdominal muscles, respiratory exercises, electricity (especially the sinusoidal current) to the abdomen, abdominal supporters and cold douches to the abdomen. The author's theories are interesting and they may prove of some assistance in the treatment of certain cases of neurasthenia.

Scheme for the Differential Testing of Nerves and Muscles for use in Diagnosis. By J. Montgomery Mosher, A.M., M.D. 8vo. pp. 58. With two cuts, five charts and six plates. Brandon Printing Company: Albany. 1903.

This little volume gives the essential rules for testing the electrical reactions of nerves and muscles, a specimen chart for electro-diagnosis, and a description in the text of the anatomical position of the various motor points of the nerves and muscles, with a series of new plates of the motor points drawn from original investigations. These plates are superior to those in ordinary use, being larger and clearer and more helpful to the student by the use of color, the motor points of the muscles supplied by a given nerve being of the same color as the motor point of the nerve. The volume will be useful to all who use electricity for diagnosis.

The Practical Medicine Series of Year Books. Vol. III, which is one of a series of twelve, issued once a month. Gustavus P. Head, M.D., Editor. 12mo. pp. 322. Casey A. Wood, M.D., The Eye; Albert H. Andrews, M.D., The Ear; T. Melville Hardis, A.M., M.D., The Nose and Throat. Chicago: The Year Book Publishers. 1903.

The selections from current literature in this little volume are well chosen and instructive. They are evidently intended for the use of the general practitioner who does work in these specialties and has not time to follow the literature of the subjects through the thousands of pages which appear in the ophthalmic and aural journals yearly. The printing and paper are good and the volume of handy size.

THE BOSTON

Medical and Surgical Journal.

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THE MINIMUM PROTEID REQUIREMENT OF THE HEALTHY MAN.

AMONG the many interesting papers presented at the April meeting at Washington of the National Academy of Sciences none attracted greater attention than the " preliminary report " by Professor Chittenden of Yale on the results of his investigation into the minimum proteid requirement of the healthy man. This investigation has been going on for the past six months in the laboratory of the Sheffield Scientific School, the experiments being made upon twenty-seven men of whom six were professors and instructors in Yale University, thirteen were soldiers detailed, as volunteers for the service, from the United States Hospital Corps, and eight were Yale students selected on account of their proficiency in athletic exercises. The object of the research was to determine whether the commonly accepted dietary standards represent the actual needs of the human organism or merely indicate what men are in the habit of eating.

Prof. Carl von Voit of Munich, whose studies have usually been regarded as furnishing trustworthy information on this point, placed the proteid requirement of the average human being at 118 gm. daily, corresponding to the excretion in the form of urea of 16 gm. of nitrogen, but of late years evidence has accumulated that certain individuals and even certain races of men could lead healthy and active lives with a daily consumption of proteid food far less than that indicated in Voit's standard tables.

Thus Kumagawa [1] has shown that Japanese dietaries containing relatively small amounts of proteids suffice to maintain the health and strength of that oriental race, and Sivén [2] has demonstrated the possibility in his own case of living for several weeks with a daily average nitrogen excretion of only 4.52 gm.

Under these circumstances Professor Chittenden's attention was naturally attracted by the claim made by Mr. Horace Fletcher [3] that great economy of food can be effected by careful attention to mastication and insalivation, and when, through Mr. Fletcher's appeal to the Secretary of War, the soldiers were detailed for the purpose, the investigation began in earnest, the expenses being borne by certain research endowments aided by a liberal contribution from Mr. Fletcher himself. No publication of results has as yet been made by Professor Chittenden, and we must therefore limit ourselves to a statement of the main facts as reported to the National Academy.

In brief it may be said that an amount of proteid food from one third to one half of that required by the Voit standard has been found amply sufficient to provide for the support of the body even in the case of those who indulged in athletic exercises. In fact, the testimony of the athletes themselves with regard to the feeling of vigor which they experience, their capacity for work and the absence of muscular soreness after violent athletic contests is one of the most convincing arguments in favor of a reduction of proteids in the diet. Professor Chittenden's personal experience is also extremely interesting, for his own proteid metabolism was for six months measured by the daily excretion through the kidneys of 5.82 gm. of nitrogen. During this time he enjoyed excellent health and performed an unusual amount of intellectual work. In reply to a question on the subject he stated to the Academy that nothing would induce him to return to his former dietary habits.

The important points in this investigation are the large number of persons concerned, the care with which the research has been conducted in its minutest details, and the length of time over which it has extended. The amount of work involved in the daily analysis of the excreta of twenty-seven persons for six months is not easily appreciated except by those who have undertaken similar investigations. Other observers have shown the possibility of reducing proteid metabolism to a fraction of its customary amount,

[1] Virchow's Archiv., cxvi, pp. 370–431.

[2] Skandinavisches Archiv. fur Physiologie, xi, p. 308.

[3] The A B–Z of Nutrition. New York: Frederick A. Stokes Co. 1903. The New Glutton or Epicure. New York: Frederick A. Stokes Co. 1903.

but it has remained for Professor Chittenden to demonstrate that such a reduction, maintained for six months, is consistent with the preservation of a high degree of health and vigor. It is to be observed that these results have been reached without the employment of any special methods of eating. Thus, while Mr. Fletcher's main contention as to the possibility of effecting a great economy in nutrition is amply confirmed, the investigation is not conclusive as to the importance of thorough mastication and insalivation. Mr. Fletcher has, however, shown in the volumes above referred to that many persons have found that attention to these processes has been of great assistance in the improvement of their nutrition.

The immediate lesson to be drawn from Professor Chittenden's work seems to be that the optimum of proteid metabolism probably lies nearer to the minimum than to the maximum of nitrogen equilibrium and that the feeling of gastric distention, which is apt to be accepted as a sign that the appetite is appeased, is, perhaps, not a wholly trustworthy indication of the satisfaction of the body's need of nutriment.

LEPROSY IN MASSACHUSETTS.

The occurrence of leprosy in any New England state is so rare as to attract public attention whenever a case is reported. During the past month, a Portuguese, a native of the Cape Verde Islands, living at Harwich, Mass., was found to be suffering with leprosy. According to the reports of the public press the people of this town appear to have been greatly alarmed at the discovery of a leper among them, and yet, if the experience of the past hundred years or more with reference to the existence of leprosy in this country may be taken as worth anything, the actual danger to a community from the existence of a case of leprosy is not so great as that which may at any time be due to the existence of a case of tuberculosis, or of typhoid fever. The spread of these diseases from the sick to the well through neglect of proper precautions has been a matter of common occurrence. But, notwithstanding the arrival of very many lepers in the United States during the years before the enforcement of acts restricting immigration, there is scarcely any record of its spread to other persons, and instances of its occurrence among the descendants of such lepers in this country are also quite as rare. Why then so much apprehension about a disease of such rare occurrence, and of actually less danger to the community than other diseases of every-day prevalence? Much is undoubtedly due to the great importance attached to the disease in the accounts given in the Mosaic books of the Old Testament. The identity of that disease with the leprosy of to-day does not appear to be a settled question.

Of the half-dozen or more cases, which have been reported in Massachusetts in the past twenty years, none have given rise to any spread of the disease. These few cases have, with one exception, been foreign born, and were natives of countries where leprosy is more or less prevalent. The exceptional case was that of a native of Massachusetts who contracted the disease after a residence of many years in the Hawaiian Islands, and after intimate association with the natives. He returned to his home in 1882, and died there in March, 1883.

In this country the states where the greatest numbers exist are California and Minnesota, but in these states the disease is limited, in the first instance to the Chinese and in the other to the Norwegian immigrants, and has in no instance attacked other people. Many cases have also occurred in Louisiana. In the little settlement at Tracadie, New Brunswick, where it has existed for a century, the disease has not spread to other towns.

The experience of Minnesota in regard to this disease, is instructive, as it covers a period of about fifty years, since immigrants from Norway began making that state their home. In Norway, as in many other countries, the disease is decreasing. An enumeration made about forty years ago showed 2,800 lepers in that country, but at present there are but little more than 1,000.

The number reported in Minnesota in the past twenty years or more has been 112. "In that state all lepers are registered and kept under observation, and all suspected cases are carefully examined. No further isolation than the use of their own beds and utensils is required, and this their own good sense, and that of their relatives, as a rule secures. Of the twenty-one lepers now known to be living in Minnesota, all are Scandinavians, and in none is the disease known to have been caused by exposure to infection in this country, but in nearly every one there is a history of exposure in Norway or Sweden." (15th Report of State Board of Health of Minnesota. Appendix 18.)

In 1888 Dr. G. A. Hansen of Norway, the discoverer of the *Bacillus leprœ* came to this country to study the disease among these immigrants

and their descendants, and gives the following interesting results of his observations: "Of about 160 lepers who have immigrated to Wisconsin, Iowa and Minnesota, thirteen are alive, whom I have seen myself, and perhaps three or four more. All the others are dead. Of all the descendants of lepers (and that includes the great-grandchildren of some of them), not a single one has become leprous. This is, in short, the result of my observation."

In consequence of the difference of opinion which prevails as to the methods by which leprosy is spread, there are also differences of opinion as to the best methods of prevention. The English Leprosy Commission considered compulsory isolation as unnecessary, while the Berlin Conference were of a contrary opinion. Notwithstanding the fact that compulsory isolation has not been practiced in Norway, the disease has by intelligent management diminished very much in that country. Hansen believed that its spread could be checked by scrupulous cleanliness, on the part of the patient. Since the number of lepers existing in any one state is comparatively small, the plan of providing a hospital or asylum by the General Government, in which such unfortunate persons may be placed, affords a practicable solution of the problem. This plan was advocated by Dr. J. C. White in an able paper in the *American Journal of Medical Sciences* (October, 1882). He stated that: "such measures should be undertaken by the national government, and should be made applicable to all parts of the country alike."

THE PATENT MEDICINE CURSE.

UNDER the foregoing title, Mr. Edward Bok has performed a useful service, by publishing, in the *Ladies' Home Journal*, a portion of the report of the Massachusetts State Board of Health upon the percentage of alcohol in patent medicines, together with some very timely and useful advice to the public upon the insidious and harmful character of many of these preparations. It is a very encouraging sign that several public journals of high standing have, within a comparatively recent period, taken a bold stand against the mercenary overtures of the patent medicine trust, and have in some instances excluded advertisements of such concoctions altogether from their columns.

Among the worst offenders in this direction are the so-called religious weekly papers. After publishing a list containing many of the tonics, bitters and other alcoholic remedies so frequently advertised in the columns of these journals, Mr. Bok goes on to say: "A pretty consistent picture do the two portions of the average religious paper present — advocating with one hand alcoholic prohibition, or temperance, and receiving, with the other hand, money for advertising — and thereby recommending to their readers — preparations filled ten times over with more alcohol than the beer which fills them with so much horror in the editorial columns! There are no papers published that are so flagrantly guilty of admitting to their columns the advertisements, not only of alcohol-filled medicines, but preparations and cure-alls of the most flagrantly obscene nature, as the so-called religious papers of this country."

Unfortunately, the original sources of much of the reliable information on this subject, the analyses of expert chemists, scattered through the pages of several reports of the State Board of Health in different years, do not reach the general public. The editions are limited by statute, and hence cannot accomplish the results that are secured by publication with judicious comments in the columns of a public journal having a very wide circulation.

Public interest in this question is shown by the fact that bills were introduced in the legislatures of three different states during the past winter, providing that the ingredients of proprietary medicines "shall be stated on packages or other receptacles thereof prepared for sale." (House Document 939, Mass. Legislature, 1904.) Further than this, a reputable drug journal[1] has, in its March and April issues, published editorials decidedly in favor of such legislation. The following extract from the March number of this paper strikes at the root of the evil:

> The fact that no such bill has ever passed and become a law in any state speaks badly for the intelligence or else the morality of the average legislator. From the standpoint of public policy nothing can be urged against a measure of this kind, while a multitude of sound reasons can be given why such a law should exist in every state. That a measure which asks for justice to the purchaser, health to the community, enlightenment to ignorance and an end to base fraud and robbery, should annually knock at the doors of legislative halls for admission, always to meet with denial, would seem to indicate that "something is rotten in Denmark." That the day is coming when a law of this kind must pass, seems certain to those who believe in the inherent righteousness of things, and the constant trend of society toward higher ethical

[1] The Druggist's Circular, March and April, 1904.

planes. The conviction has been growing for years that in many of the proprietary medicines in which so many people indulge, resides the first insidious introduction to alcohol and narcotics that later develops into soul-destroying habits.

Nearly a half century ago, the genial poet-physician said: "I firmly believe that if the whole materia medica, as now used, could be sunk to the bottom of the sea, it would be all the better for mankind and all the worse for the fishes." To this sweeping statement, however, Dr. Holmes made certain exceptions, and we half suspect from a later passage in the same address that he had in mind the great army of patent medicines which even then were legion.

"Somebody buys all the quack medicines that build palaces for the mushroom, say rather toadstool, millionaires. Who is it? These people have a constituency of millions. The popular belief is all but universal that sick persons should feed on noxious substances." Later on he aims the following Horatian shaft at the same industry:

Hardest of all when art has done her best,
To feed the cuckoo brooding in her nest,
The shrewd adventurer, fresh from parts unknown,
Kills off the patients Science thought her own;
Towns from a nostrum vendor get their name,
Fences and walls the cure-all drug proclaim.
Plasters and pads the willing world beguile,
Fair Lydia greets us with astringent smile.
Munchausen's fellow-countryman unlocks
His new Pandora's globule-holding box,
And as King George inquired with puzzled grin,
"How — how the devil got the apple in?"
So we ask how, — with wonder opening eyes, —
Such pigmy pills can hold such giant lies!

The fictitious value which can be created by means of liberal advertising is fully illustrated in the case of patent and proprietary medicines. Upon this point the *Druggist's Circular* says: "Aside from these positive dangers lies the fact that many of these preparations are pure and simple frauds upon the community. Their intrinsic worth is trifling compared with what is charged for them,[2] and where they benefit once, they injure a dozen times. Their dupes, while running after imaginary health, are sinking themselves deeper into the toils of chronic and sometimes of acute disease."

[2] An illustration of this fact is shown in the case of a certain proprietary medicine recently brought out in a western city, in which the only ingredients are water and sulphur, the sulphur being so combined as to produce its most destructive agents, sulphurous and sulphuric acids ruinous to the teeth of those who swallow the compound. This article, which sells for one dollar per pint bottle, can be made for two cents a gallon.

When the community at large are informed that hair dyes marked "harmless" owe their activity to one of the most insidious of all poisons, sugar of lead, face bleaches also marked "harmless" are composed of the most violent poisons; asthma and catarrh cures contain considerable quantities of cocaine; "spring medicines" owe their action, not to inert sarsaparilla, but to an agent which cannot be taken by the quart with impunity, and many temperance tonics are popular only because of the alcohol they contain, and this information is conveyed by an honest label affixed to each package, the health of the community will be improved in no small degree.

Even the life insurance companies have taken up the subject, and applicants for insurance in some companies are now asked, "What patent medicines or cures have you taken in the past five years?" One writer says, "A man who will swallow a patent medicine for his blood will swallow a yellow journal editorial for his mental ballast, and he who will bolt department-store pills for his liver is not a fit subject for life insurance."

MEDICAL NOTES.

Appointment of Dr. Charles R. Bardeen. — It is announced that Dr. Charles R. Bardeen, at present associate professor of anatomy in the Johns Hopkins Medical School, is to take the chair of anatomy at the University of Wisconsin.

State Requirements for Medical Practice. — The Illinois State Board of Health has done a service in gathering together in brief the requirements for medical practice in the various states of the Union. The aim of the compiler has been to give the essential facts to physicians who are desirous of ascertaining how they can qualify in particular states. No attempt has been made to enter into further detail regarding laws, regulations, fees for examination, time and place of examination, etc. The pamphlet, which is printed by the American Medical Association Press, should certainly prove of much practical value.

Sanitary Conditions in the Philippines. — According to the monthly report of the Board of Health of the Philippine Islands and the City of Manila for December, 1903, evidence of continued improvement in sanitary matters is apparent. During the month in question two new free dispensaries were opened, with the hope

that they might become more popular than they have hitherto been with that class of the population for whom they are especially designed. Hitherto they have been regarded with considerable distrust.

A course of instruction for provincial health officers was also put into operation in Manila during the month. The course extends over a period of four weeks, is wholly practical, and is designed to give general instruction in sanitary work as needed by the various provincial boards of health. The course will be continued until all presidents of provincial boards of health have had an opportunity of taking it. Plague and malaria are reported to be under control, and smallpox plays a very small part in the mortality.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, May 4, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 44, scarlatina 18, typhoid fever 19, measles 179, smallpox 0.

DEPARTMENT OF STATISTICS. — The Boston Common Council has refused to concur with the recent action of the Board of Aldermen in voting to abolish the Boston department of statistics.

A LEPER IN HARWICH, MASS. — A case of leprosy in a Portuguese has been discovered in Harwich, Mass. He is at present living alone in an isolated situation and is prevented by the authorities from leaving the premises. His food is supplied by the town.

AMERICAN SOCIAL SCIENCE ASSOCIATION. — This Association holds its annual meeting in Boston, May 11, 12, 13 and 14. Dr. S. H. Durgin is chairman and Dr. H. W. Hill, secretary of the Department of Health which meets Friday, May 13, in Huntington Hall of the Institute of Technology.

ALCOHOL AS A STIMULANT. — Further interesting information regarding the action of alcohol as a stimulant was afforded by the so-called Marathon race recently held in Boston. The race involves a run of twenty-five miles. One of the contestants, a youth of eighteen, began to take raw brandy near the beginning of the race. He had four or more drinks in all, although he had never taken liquor before. The result was a condition of extreme exhaustion at the end of the race, with poor pulse, low temperature and mental dulness. It was the opinion of the physicians in attendance that alcohol taken as a stimulant in such tests of strength and endurance acts rather as a poison than as a stimulant.

A DINNER TO DR. C. S. SHERRINGTON. — Dr. C. S. Sherrington, who has this year delivered the Silliman lectures at Yale University, was tendered a dinner by Prof. R. H. Chittenden, at which a company of twenty men from various cities, particularly known for their work in physiology and allied sciences, were present. Among the non-medical guests was Mr. Horace Fletcher whose work on nutrition has of late excited wide attention.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending May 7 was 239, as against 210 the corresponding week last year, showing an increase of 29 deaths, and making the death rate for the week 20.66. The number of cases and deaths from infectious diseases included diphtheria, 52 cases and 3 deaths; typhoid fever, 17 cases, 1 death; measles, 192 cases, 3 deaths; tuberculosis, 44 cases, 31 deaths. The deaths from pneumonia were 32.

NEW YORK.

CELEBRATION OF ONE HUNDRED AND FIFTIETH ANNIVERSARY OF KING'S COLLEGE. — In the latter part of October next Columbia is to have a four days' celebration of the one hundred and fiftieth anniversary of the foundation of King's College, by which name the institution was known up to the time of the Revolution.

RESIGNATIONS. — On May 4, Dr. William T. Bull formally severed his connection with the Medical Department of Columbia University, and as a token of their regard the classes of 1904 and 1905 presented to him a silver loving cup, appropriately inscribed. Dr. Robert W. Taylor, Clinical Professor of Genito-Urinary Diseases, has now tendered his resignation.

FORDHAM HOSPITAL. — Plans for the new buildings of the Fordham Hospital, in the Borough of the Bronx, to be erected by the city, have just been filed at the Building Department. The proposed structures include the main hospital building, 305 by 43 feet and five stories in height, a four-story power house, which will also contain a laundry and quarters for employees, a two-story brick stable and dead-house, and a five-story, nurses' home. The estimated cost is $560,315, of which $339,000 is for the hospital proper.

Prevalence of Cerebro-Spinal Meningitis. — During the past month there has been a very serious increase in the prevalence of cerebro-spinal meningitis. In the week ending April 9, 24 deaths were reported from it; in the week ending April 16, 26 deaths; in the week ending April 23, 55 deaths; and in the week ending April 30, 70 deaths. The disease is represented as of a malignant type, a large proportion of the cases terminating fatally in a very brief time. This appears to be especially the case in a certain section of Harlem, in the neighborhood of 106th Street and Madison Avenue, where nine children have died within ten days, and where a feeling akin to panic prevails among the people. No such severe visitation of cerebro-spinal fever, it is stated at the Health Department, has occurred in New York within thirty years.

Investigation of Oysters. — To determine whether the oysters which supply the New York market are exposed to contamination a series of investigations was sometime ago undertaken by Dr. Walter Bensel, assistant sanitary superintendent of the health department. They were very carefully made and extended along the shores of Long Island, on the west side of Staten Island, along the New Jersey coast, and up the Sound as far as New Haven. The conclusions reached by Dr. Bensel are, briefly, as follows: (1) That the beds from which oysters are taken for consumption in the city often lie in grossly polluted waters; (2) That the process of "freshening," "fattening," or "drinking," often performed as it is in small streams badly contaminated with sewage, is a most dangerous practice and should be discontinued.

Increase of Tuition Fee at Columbia. — As a result of the recent increase of the tuition fee from $200 to $250 a year, ninety-eight of the students at the school have decided not to return next season, but to go to other institutions. When the announcement of this increase was made a few weeks ago the students held a meeting of protest, the result of which was that a petition was sent to each member of the board of trustees, urging that it was a manifest injustice that those who had entered with the understanding that the fee was to be $200 a year should be subjected to the increase. At their meeting of May 2 the trustees decided not to make any concession, and at the next meeting of the students, on May 5, ninety-eight of them announced their intention to pursue their medical studies elsewhere.

Continuance of High Death-Rate. — The unusually high death-rate continues, and during the past month it even advanced one point. The Health Department reports show that during April the mortality in the city represented an annual death-rate of 24.82, as against 23.80 in March and 18.98 in April, 1903. The corrected death-rate for the month, excluding non-residents and infants under one week old, was 23.76. The maximum mortality of the year was reached during the week ending April 9, when the death-rate ran up to 25.76. In the corresponding week of last year it was more than 6½ points lower, 19.05. Among the diseases which showed an augmented fatality were the following: The weekly average of deaths from diphtheria and croup increased from 40.8 in March to 60.25 in April; of deaths from scarlet fever, from 26.2 to 29; from measles, from 29 to 41.5; from broncho-pneumonia, from 114 to 132.25; from pulmonary tuberculosis, from 195.6 to 202.75; from Bright's disease and nephritis, from 130.6 to 135½; from organic heart diseases, from 106.4 to 114; from diarrheal diseases, from 41.6 to 49.25; and from diarrheals under two years of age, from 32.4 to 36. Among the few diseases showing a decline in mortality were the following: The weekly average of deaths from pneumonia decreased from 296 in March to 244.75 in April; of deaths from influenza, from 28.2 to 22; from typhoid fever, from 9.4 to 6.25; and from cancer, from 51 to 48¼. No death from smallpox was reported; the last fatal case of that disease occurring in the week ending March 19.

Obituary.

RESOLUTIONS ON THE DEATH OF DR. CHARLOTTE BLAKE BROWN.

It is with deep regret that we learn of the death of Dr. Charlotte Blake Brown of San Francisco, at the early age of fifty-six years.

Her pioneer work on the Pacific slope and her warm interest in all medical women won the esteem and admiration of a wide circle of friends.

It is therefore resolved, That the New England Hospital Medical Society deplores the loss of her great services to her sex and to the profession.

Resolved, That a copy of this expression of appreciation be published in the Boston Medical and Surgical Journal and also be sent to her family.

Emma L. Call, M.D.,
Mary F. Hobart, M.D.,
Emma B. Culbertson, M.D.,
Committee.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 30, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Measles.	
New York	3,908,644	—	—	—	—	—	—	—	
Chicago	2,021,088	—	—	—	—	—	—	—	
Philadelphia	1,407,968	591	148	28.76	16.75	1.52	.15	.30	
St. Louis	633,606	—	—	—	—	—	—	—	
Baltimore	543,329	202	54	27.22	16.33	.98	.49	—	
Cleveland	444,251	—	—	—	—	—	—	—	
Buffalo	400,645	—	—	—	—	—	—	—	
Pittsburg	362,403	157	—	24.20	15.28	2.55	—	1.27	
Cincinnati	338,377	—	—	—	—	—	—	—	
Milwaukee	325,990	—	—	—	—	—	—	—	
Washington	300,776	—	—	—	—	—	—	—	
Providence	196,744	72	20	22.22	11.11	1.39	1.39	1.39	
Boston	617,950	255	80	22.35	15.28	1.96	1.57	1.57	
Worcester	136,925	37	10	22.18	18.50	3.70	—	—	
Fall River	119,849	37	18	21.66	16.20	—	—	—	
Lowell	104,402	31	12	16.10	32.26	—	—	—	
Cambridge	100,998	24	5	20.83	8.33	—	—	—	
Lynn	73,878	32	3	12.50	—	—	—	—	
Lawrence	72,348	—	—	—	—	—	—	—	
Springfield	72,020	19	5	26.31	10.52	—	—	—	
Somerville	70,413	—	—	—	—	—	—	—	
New Bedford	68,863	17	4	5.88	11.76	—	—	—	
Holyoke	50,338	21	6	9.52	19.05	—	—	—	
Brockton	46,601	14	3	14.28	—	—	—	—	
Newton	39,310	7	2	—	42.90	—	—	—	
Haverhill	39,061	10	5	10.00	30.00	—	—	—	
Malden	37,205	9	2	33.33	11.11	—	—	11.11	
Salem	37,188	8	2	—	—	—	—	—	
Chelsea	36,499	16	3	6.25	18.75	—	—	—	
Fitchburg	36,535	17	3	11.76	17.64	—	—	—	
Taunton	34,577	17	5	17.64	17.64	—	5.88	—	
Everett	30,309	9	2	11.11	—	—	—	—	
North Adams	29,201	8	3	—	37.50	—	—	—	
Quincy	26,798	8	1	12.50	25.00	—	—	—	
Gloucester	26,121	—	—	—	—	—	—	—	
Waltham	25,797	6	—	—	16.67	—	—	—	
Brookline	23,876	0	—	—	—	—	—	—	
Pittsfield	23,870	11	2	18.18	27.27	9.09	—	—	
Medford	21,956	6	—	—	16.67	—	—	—	
Chicopee	21,892	4	1	50.00	—	—	—	25.00	
Northampton	20,314	7	3	42.90	—	—	—	28.60	
Beverly	15,807	3	—	33.33	—	—	—	—	
Leominster	15,711	—	—	—	—	—	—	—	
Clinton	15,694	5	1	—	20.00	—	—	—	
Adams	14,745	3	0	—	—	—	—	—	
Attleboro	14,561	2	—	—	—	—	—	—	
Hyde Park	14,500	2	—	—	—	—	—	—	
Newburyport	14,478	4	1	—	25.00	—	—	—	
Woburn	14,315	6	—	16.67	—	—	—	—	
Melrose	13,819	2	—	—	50.00	—	—	—	
Westfield	13,809	6	1	16.67	—	—	—	—	
Milford	13,771	—	—	—	—	—	—	—	
Marlboro	13,609	2	1	—	—	—	—	—	
Revere	13,609	2	—	—	—	—	—	—	
Framingham	13,974	8	2	12.50	—	—	—	—	
Peabody	13,408	—	—	—	—	—	—	—	
Gardner	12,334	1	—	—	—	—	—	—	
Southbridge	11,716	—	—	—	—	—	—	—	
Watertown	11,575	2	1	50.00	—	—	—	—	
Weymouth	11,350	4	1	—	—	—	—	—	
Plymouth	11,139	—	—	—	—	—	—	—	

Deaths reported, 1,694; under five years of age, 414; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 398; acute lung diseases 264, consumption 201, scarlet fever 17, whooping cough 6, cerebrospinal meningitis 3, smallpox 8, erysipelas 8, puerperal fever 4, measles 13, typhoid fever 61, diarrheal diseases 49, diphtheria and croup 23, influenza 5.

From whooping-cough, Baltimore 1, Pittsburg, 2, Springfield 2, Fitchburg 1. From smallpox, Philadelphia 8. From cerebrospinal meningitis, Philadelphia, Worcester and Chelsea 1 each. From erysipelas, Philadelphia, Baltimore, Providence and Taunton 1 each, Boston 4. From typhoid fever, Philadelphia 45, Baltimore 3, Pittsburg 7, Providence 1, Boston 3, Fall River 1, Brockton 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending April 16, the death-rate was 17.6. Deaths reported 5,142; acute diseases of the respiratory organs (London) 156, whooping cough 216, diphtheria 41, measles 191, smallpox 6, scarlet fever 21.

The death-rate ranged from 8.2 in Reading to 25.2 in Halifax London 16.7, West Ham 14.6, Brighton 21.9, Southampton 9.7, Plymouth 18.8, Bristol 16.1, Birmingham 22.1, Leicester 17.7, Nottingham 19.7, Liverpool 20.0, Bolton 13.1, Manchester 21.5, Salford 21.4, Bradford 21.9, Leeds 19.6, Hull 17.7, Cardiff 18.3, Rhondda 18.8, Wigan 23.2, Merthyr Tydfil 18.6, Walthamston 10.3, Norwich 23.9

METEOROLOGICAL RECORD.

For the week ending April 30, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 24	30.18	50	63	37	58	60	59	S W	S	6	16	C.	F.	0
M. 25	29.73	57	68	46	81	54	66	S W	W	13	7	O.	C.	.05
T. 26	29.92	50	54	45	81	24	78	N	S E	10	8	O.	O.	0
W. 27	30.17	42	45	40	85	100	92	N E	N E	15	27	R.	R.	1.15
T. 28	30.06	41	47	40	100	100	100	N E	E	20	14	R.	O.	2.37
F. 29	29.80	48	52	45	100	100	100	N	N E	9	6	R.	R.	1.09
S. 30	29.70	58	70	47	97	78	86	W	W	8	5	R.	C.	.18
☞	29.94		57	43			83							5.44

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

EDWARD LIVINGSTON TRUDEAU, Jr., M.D., of New York, son of Dr. E. L. Trudeau of Saranac Lake, N. Y., died from pneumonia, after a brief illness, on May 4. He was thirty-one years of age, and was born at Saranac Lake. He was graduated from Yale in 1896, and from the medical department of Columbia University in 1900. Later, he spent two years as an interne at the Presbyterian Hospital, New York, and in the autumn of 1903 commenced private practice. In December last he was married to Miss Hazel Martyn of Chicago.

AUGUST F. W. REIMAR, M.D., of College Point, Borough of Queens, New York City, died suddenly on April 29, from cardiac disease. He was a native of Germany, and sixty-six years of age. He was graduated from Augusta University, Goettingen, in 1860, and came to the United States in 1864.

SOCIETY NOTICES.

AMERICAN GYNECOLOGICAL SOCIETY.— The twenty-ninth annual meeting will take place in Boston, May 24, 25 and 26, 1904. The sessions will be held in the Boston Medical Library, No. 8, The Fenway. The profession is cordially invited to attend.

J. RIDDLE GOFFE, M.D., Secretary.

AMERICAN UROLOGICAL ASSOCIATION.— The annual meeting of the American Urological Association will be held at Atlantic City, June 8 and 9, 1904.

FERD. C. VALENTINE, M.D., Secretary.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.— This Association will hold its sixtieth annual meeting at the Planters' Hotel, St. Louis, May 30, 31, June 1, 2, 3, 1904.

C. B. BURR, M.D., Secretary.

AMERICAN LARYNGOLOGICAL ASSOCIATION.— The twenty-sixth annual meeting of the American Laryngological Association will take place at Atlantic City, N. J., June 2, 3 and 4, 1904. The sessions will be held at the Hotel Chelsea.

JAMES E. NEWCOMB, M.D., Secretary.

BOOKS AND PAMPHLETS RECEIVED.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By leading members of the Medical Profession throughout the World. Edited by A. O. J. Kelley, A.M., M.D. Vol. I. Fourteenth Series, 1904. Philadelphia: J. B. Lippincott Co. 1904.

Seventh Annual Report of the Trustees of the Boston Insane Hospital. For the year ending January 31, 1904.

Exposé de M. de Piza, Délégué du Brésil, sur la Fièvre Jaune. Paris, 1904.

The Practical Medicine Series of Year Books. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D. Vol. IV. March, 1904. Chicago: The Year Book Publishers.

Original Articles.

ENTEROSTOMY IN PERITONITIS.

BY ROBERT B. GREENOUGH, M.D., BOSTON,

Surgeon to Out-Patients, Massachusetts General Hospital; Assistant in Surgery, Harvard Medical School.

THE value of direct drainage of the intestine by enterostomy, in cases of acute intestinal obstruction, is so well recognized as to need no further argument in its support. It is almost universally employed in the graver cases of mechanical obstruction or ' ileus," and the technique and indications for the operation have been thoroughly established. (Kocher,[10] Treves.[28])

The value of enterostomy in that form of intestinal obstruction which occurs in diffuse peritonitis, the so-called " dynamic obstruction " or " paralytic ileus" has not been so fully recognized. A number of writers have called attention to the advantages of the operation in this condition, but the varying technique of the application of the fistula, and the different arguments advanced in its support, appear to justify a brief review of the subject and the report of a series of forty-one cases of diffuse peritonitis from the Massachusetts General Hospital in which the operation has been done. The writer would here express his thanks to the surgeons of the hospital for the permission to report their cases.

In 1891, Mr. F. T. Paul[23] of Liverpool described a glass tube which he used in the operation of inguinal colostomy, and in 1892 he published a further communication in which he reported the use of this tube in cases of acute mechanical obstruction and peritonitis and in resection of the colon. The device was accepted in England and is in use in that country at the present time. In 1895, a similar device was described by Dr. S. J. Mixter[20] of Boston and its value in the paralytic obstruction of acute general peritonitis reported. The Mixter tube and the Paul tube are to all intents and purposes the same, and although the priority of description belongs undoubtedly to Mr. Paul, to Dr. Mixter belongs the credit of its successful application in the treatment of paralytic obstruction and its introduction in this community, where it is commonly known as the Mixter tube.

In 1893, Henrotin[9] observed the beneficial effect of a spontaneous fecal fistula in a case of diffuse peritonitis and applied the principle successfully in a later operation for the same condition. Had a[7] in 1894, Mixter[20] in 1895, Porter[25] in 1897, Pond[24] in 1898 and van Arsdale[29] in 1899 bore witness to the efficacy of the operation in paralytic obstruction and reported cases. During this time puncture or aspiration of the distended bowel at operation with immediate closure of the wound was extensively employed in cases of diffuse peritonitis. McCosh,[18] however, observed that the relief to distention obtained by this maneuvre was confined to a distance within twelve inches of the puncture, and in general the temporary and incomplete relief obtained by this method, and the inability to apply the procedure in the after treatment of the case, have led to its rejection in favor of the more lasting effects of enterostomy. In 1897 McCosh[18] advised the injection of magnesium sulphate solution directly into the small intestine at the time of operation, and reported a number of successful cases. This procedure again approaches that of enterostomy and has obtained a number of adherents. It is directed against the symptom of paralysis of peristalsis and has been combined with multiple puncture of the bowel and closure of the wounds. Its advantages and disadvantages will be discussed in connection with the causes of distention.

Lennander[14] in his valuable article on peritonitis published in 1901 discusses the value of puncture of the intestine and enterostomy and decides strongly in favor of the latter in the graver cases of diffuse infection. He opens the cecum in preference to the ileum, on account of the danger of irritation and digestion of the wound and the development of an artificial anus. The cecum is attached to the parietal peritoneum and a catheter is introduced and held in place by a purse-string suture. He considers the operation indicated when distention is present or when its advent is to be feared from the extent of the peritoneal infection. When enterostomy is not performed at the primary operation Lennander advises the fixation of the cecum in the wound for secondary enterostomy if occasion should arise.

At the German Surgical Congress in 1902, Heidenhain[8] presented an elaborate paper on enterostomy in peritonitis and reported several cases. He considers that the obstruction in peritonitis is chiefly due to paralysis of peristalsis, but that this paralysis is to a great extent local in character and confined to one or more adjacent coils of bowel. The cause of the paralysis he attributes chiefly to infiltration of the bowel wall and to toxemia, although he admits the significance of adhesions and mechanical obstruction. For these reasons Heidenhain performs enterostomy of the ileum above the affected portion of the bowel and does not advise the operation when there is a diffuse infection of the peritoneal cavity. At the same meeting Doyen[3] of Paris presented a communication upon enterostomy of the jejunum in peritonitis, an operation against which a number of arguments can be advanced, based chiefly upon the need of an immediate secondary operation for closure of the fistula in order to prevent digestion of the wound and death from starvation.

In 1903, papers by Finney and Pancoast,[5] Follis,[6] Lund[15] and Escher[4] appeared on the subject of enterostomy in peritonitis and other conditions, and a number of methods of operation were described. Finney and Escher attached the opening in the bowel to the parietal peritoneum by suture and protected the abdominal cavity with gauze, while Follis placed gauze between the bowel and the parietal peritoneum and sutured through the gauze. Follis

made use of the operation chiefly for mechanical obstruction and opened the ileum. Finney also opened the ileum for the relief of distention either of mechanical or paralytic origin and for the introduction of nourishment. Escher advises enterostomy especially in typhoid perforation, in order to save the time required to close the perforation and to ensure drainage of the intestine. Lund [15] considers especially cases of distention due to mechanical obstruction rather than paralysis, and occurring in local rather than diffuse infections of the peritoneum. He advises secondary enterostomy of the ileum as the operation to be preferred. For this purpose the ileum is sutured to the parietal peritoneum and a catheter introduced for drainage. The fistula is then to be closed by excision and suture at a later operation. He reports in detail five cases of enterostomy of which four recovered, and refers briefly to five other unsuccessful cases which are not reported.

Statistics of results in diffuse peritonitis which are based upon selected cases can be of little value. So many factors enter into the question of the ultimate result of the disease that it is impossible to find two cases exactly alike. The duration of the disease and, what is of far more importance, the extent of diffusion which has occurred during that time, the source of the infection and its virulence, the presence or absence of gross or readily diffusible irritants accompanying the infection, the resistance of the patient and the previous condition of the peritoneum, all play an important part in the patient's chances of recovery. The operation itself, the duration of anesthesia, the extent of manipulation and exposure of the abdominal contents and the efficiency and rapidity of the surgeon are of great significance. Finally, the conduct of the after-treatment of the case, the judicious use of lavage of the stomach and bowel, the administration of fluids, of stimulants and of nourishment, the employment of subcutaneous and intravenous infusion, and the care of the abdominal wounds and drainage wicks or tubes, — all are important elements in the results of treatment of this grave disease.

The classifications of the different forms of peritonitis are often inadequate in clinical application. The three forms of diffuse peritonitis described by Mikulicz [12]; diffuse septic, gangreno-purulent and fibrino-purulent peritonitis, can in many cases be differentiated with certainty only at the autopsy table. For clinical purposes the main fact is the determination of whether the peritonitis is a local process or whether it is diffuse and spreading. The appearance of the exudate and of the peritoneum, the extent and rapidity of diffusion and the constitutional reaction of the patient then determine the gravity of the condition. In this connection the correct interpretation of the appearances of the peritoneum of the general cavity in the presence of a local process is of great importance. In certain cases of local peritonitis of a virulent type a degree of inflammatory reaction occurs in the general peritoneal cavity which is due more to chemical and toxic causes than to actual bacterial infection. This condition produces a moderate injection of the peritoneum and a serous exudate containing leucocytes. It has been called "peritonism" by many writers (Burkhardt,[2] Weber [30]) and it subsides promptly on evacuation of the local abscess without requiring irrigation or drainage for its relief. While undoubtedly predisposing to a more severe form of actual peritonitis on the introduction of bacteria, peritonism itself is of minor significance and should be distinguished from actual peritonitis. Without the proof of cultures or cover-glass examination therefore, the lesser degrees of peritoneal inflammation cannot always be accepted as demanding more than local treatment.

The actual causes of death in diffuse peritonitis are variable. Patients may die in the first twenty-four hours after operation from the severity of the disease and the added shock of operation. A certain number of cases will die within forty-eight hours from the commencement of the disease itself with septic intoxication (the peritoneal sepsis of Mikulicz), whether operation is done or not. Other cases succumb from the second to the fifth day of the disease with "peritoneal facies," vomiting, paralysis of the bowel, distention, low temperature and thready pulse, a train of symptoms largely due to the suspension of peristalsis and in part remediable by enterostomy.

A certain number of cases survive this stage of the disease only to die of sepsis or exhaustion from the extent of the local suppurative process in the peritoneal cavity, after the diffuse peritonitis has subsided and peristalsis has been again established. Among this number are the cases of subdiaphragmatic and pelvic abscess, which occur after purulent peritonitis.

Finally, cases may die of intercurrent diseases or later complications in convalescence. Pneumonia, uremia, pylephlebitis and thrombosis, liver abscess and the various forms of post-operative intestinal obstruction due to adhesions, each cause a certain number of deaths after diffuse peritonitis.

The tympanites of peritonitis has been attributed to a number of different causes and a brief review of the subject is necessary in the consideration of the value of enterostomy. An increase in the amount of gas in the intestine in peritonitis may be due to increased production, diminished out-flow or diminished absorption. Diminished out-flow is chiefly due to mechanical obstruction of the lumen of the gut, or to diminished or suspended peristalsis.

A sudden and severe irritation or stimulation of the sensory nerves of the abdominal area is capable of causing a reflex inhibition of peristalsis. This occurs in cases of biliary and renal colic (Nothnagel [21]) and is probably the main cause of the suspension of peristalsis which occurs so frequently after laparotomy. This inhibition paralysis is undoubtedly a conserva-

tive effort on the part of Nature. It is certain that active peristalsis greatly favors the rapidity of diffusion of an infecting agent in the peritoneal cavity (Meisel [19]), and absence of peristalsis would tend to limit diffusion and confine the process to a local infection. This theory has its clinical application in the non-operative treatment of appendicitis during the intermediate stages, which has been advocated by Ochsner.

Another form of paralysis of peristalsis has been thought to be due to septic absorption. The toxins of a virulent infection, either within the bowel or in the peritoneal cavity, may act locally upon the nerve endings and muscle fibers of the intestinal wall or through the central nervous system. The tympanites of typhoid fever is advanced by Nothnagel [21] as a type of toxic paralysis of peristalsis.

Paralysis of the muscular action of the intestine has also been attributed to the local effect of infiltration of the intestinal wall by inflammatory products. (Heidenhain, [8] Nothnagel. [21]) Marked examples of this condition are seen occasionally after strangulated hernia and in the intestine forming the wall of an appendix abscess. It has been thought to occur also in diffuse peritonitis, but its importance is probably far greater in inflammatory conditions of a local nature.

Pure mechanical obstruction of the bowel is found to be present in a certain number of cases of diffuse peritonitis. This is especially the case when the peritonitis results from mechanical obstruction or when a local inflammatory process antedates by some time the onset of the diffuse infection. Compression of the bowel by inflammatory exudate may occur as in a pelvic abscess of large extent. Obstruction by bands and adhesions from a previous peritonitis are occasionally reported. The loss of peristalsis by the adhesion of large areas of bowel to the abdominal wound may offer impediment to peristalsis, and twists and kinks of the coil of bowel immediately above the adhesion may close the lumen of the bowel and cause obstruction. Obstruction of the bowel by gauze wicks which have been introduced for drainage is also to be borne in mind as one of the possible causes of mechanical obstruction. The symptoms of intestinal obstruction due to mechanical causes, however, develop as a rule only after the lapse of a period of time sufficient for the formation of firm adhesions. Distention due to obstruction of this nature appears during the convalescence from operation in diffuse peritonitis, or in cases in which a local inflammatory process has existed for some time prior to the appearance of the symptoms of diffuse infection. Much has been written upon the subject of intestinal obstruction of this nature and its relief by operation. An increase of peristaltic activity can often be demonstrated in these cases by visible waves of contraction in the distended bowel, accompanied by colicky pain of an intermittent character. This condition is very different from the absence of peristalsis in the distention of peritonitis. The records of the Massachusetts General Hospital from 1900 to 1904 show 17 cases of acute intestinal obstruction after inflammatory conditions of the peritoneum, which came to operation. Seven cases of more chronic obstruction were also found attributable to this cause. The shortest period of time which elapsed in any case between the first symptoms of peritonitis and the operation for obstruction was six days. This was a case of local appendix abscess of two days' duration which was operated upon by Dr. Codman. Four days later symptoms of mechanical obstruction demanded interference, and a coil of ileum was found twisted upon itself and adherent to the appendix wound. The adhesions were freed, a Mixter tube was tied into the distended coil of ileum and the patient recovered. A secondary operation for closure of the fistula was necessary and the patient is now well. Six cases showed obstruction between seven and fourteen days after the first symptom of peritonitis and 11 cases only after the lapse of a period of time greater than one month. The cause of the mechanical obstruction in these cases was as follows: Volvulus occurred twice, twists and kinks four times and bands and adhesions in 11 cases. In two cases only was the obstruction the result of a diffuse peritonitis, whereas in 16 cases it followed a local inflammatory process in the peritoneal cavity. Of the 24 cases of diffuse peritonitis which are reported in detail at the conclusion of this paper and in which enterostomy was done as a primary operation, distention was present at the time of operation in 16 cases. Of these 16 cases, in 9 adhesions were found in some portion of the peritoneal cavity, in 3 cases the record is not specific on this point and in 6 cases no adhesions whatever were discovered. In only two cases of the entire 24 was actual mechanical obstruction present; this was due in one case to cancer of the colon and in the other to an abscess in the pelvis. The duration of the diffuse peritonitis in these cases averaged 2.4 days from onset to operation. It is apparent, then, that obstruction due to purely mechanical causes occurs chiefly after the lapse of a considerable time from the beginning of the peritonitis and that it is favored more by a local than by a diffuse form of infection. Visible peristalsis and colicky pain are not infrequently observed in the early stages of mechanical obstruction and serve to distinguish from the paralysis of peristalsis which accompanies diffuse peritonitis.

An important cause of paralysis of peristalsis and probably in the later stages of peritonitis and of intestinal obstruction, the most important one, is distention of the bowel by the accumulation of gases within its lumen. The growth of the bacteria which normally inhabit the intestinal canal results in the production of gases of different varieties as by-products in the decomposition of the intestinal contents. (Kukula.[13]) When the out-flow of these gases is prevented, distention of the bowel ensues, the stagnant intestinal contents undergo more rapid decomposition, and

the gases, ptomaines and bacterial toxins which accumulate affect the integrity and function of the bowel wall. Up to a certain point distention of the intestine may occur without permanent effect; beyond this point, however, the thinning of the intestinal wall and interference with its blood supply and nervous mechanism produce a condition of paralysis of the muscular coats of the intestine. Recovery from this condition is of necessity slow and may not occur at all. Examples of paralysis from over-dilatation are familiar in the stretched cervix or sphincter ani or the over-distended bladder. In over-distention of the in estine we thus have the familiar concept on of the vicious circle in another form; more gas, more distention, more paralysis, more decomposition, more gas, etc. It is this aspect of distention against which enterostomy offers most satisfactory relief. Parlaysis of the intestinal muscle, however, is not the only danger of obstruction to the onflow of the intestinal contents. Ptomaines and bacterial toxins are produced in the process of decomposition, and their absorption is followed by grave systemic disturbance. The absorption of these products is probably delayed by the disturbance of circulation in the distended bowel, but that it does occur is proved by the constitutional toxemia of strangulated hernia, and by the experiments upon animals which have been reported. (Kukula,[13] Borscezky.[1]) The thinning of the intestinal wall which results from the accumulation of gases is accompanied by a change in its physical characteristics of such a nature as to allow the ready passage of bacteria from the lumen of the bowel into the blood vessels and even through the wall into the peritoneal cavity. (Borscezky and Generisch.[1]) The significance of this phenomenon in the increase in virulence of a case of peritonitis, and even in the production of a fatal septicemia, is readily appreciated.

Although in theory the different causes of intestinal paralysis and obstruction can be differentiated and discussed, in actual occurrence they merge one into another to such an extent that they can be separated with difficulty or not at all. Schlange[26] distinguishes two main classes of intestinal obstruction, mechanical and "dynamic." Mechanical obstruction is associated especially with local and chronic forms of peritonitis and dynamic or "paralytic ileus" with acute diffuse forms of the disease. However true this distinction may be in the early stages of both conditions, it is a well recognized fact that the distinction fails as the disease progresses to its fatal termination. In pure mechanical obstruction due to a constricting band the over dilatation and toxic paralysis produced by decomposition of the intestinal contents may prevent recovery after removal of the constricting band by operation, or the symptoms of diffuse peritonitis may supervene and mask the original symptoms of intestinal obstruction. In diffuse peritonitis the process may be even more complicated. The inhibition of peristalsis from the irritation of the primary infection merges into the paralysis of toxemia as rapid absorption from the peritoneal cavity takes place. To this is further added the paralysis from over dilatation as gases collect from the fermenting contents of the intestine. The extent to which actual mechanical causes enter into the production of the dynamic obstruction of peritonitis has been much discussed. Körte[12] considers that infiltration of the bowel wall plays an important part in paralytic obstruction, and Kocher[10] believes that slight mechanical causes, such as light adhesions, circulatory changes and the handling of the intestine at operation, are important factors. In all probability many causes enter into the production of the condition, but it must be admitted that to a paretic intestine a mechanical obstacle of almost trivial nature may be insurmountable. The main feature of the distinction, however, hangs upon the presence or absence of peristalsis. When peristalsis is present, as shown by visible contractions and spasmodic pain, mechanical causes are especially to be considered. When pain is continuous and no evidence of peristalsis is to be obtained the graver condition is to be feared and relief must be prompt or not at all.

The more remote effects of accumulation of gas in the intestine are next to be considered. The distended coils of bowel demand more room for their accommodation, which can be obtained only by elevation of the abdominal wall and of the diaphragm. Embarrassment of respiration and even of the action of the heart are not uncommonly observed as a result of this encroachment upon the cavity of the thorax. Another result of paralysis of peristalsis is the increased opportunity for the formation of adhesions between the coils, with the subsequent danger of mechanical obstruction. At the time of operation distended coils may so obstruct the view or the manipulations of the surgeon as to endanger life by prolonging or rendering inadequate the measures for the relief of the disease. Finally, the normal elimination of fecal material and gases by rectum is prevented by suspension of peristalsis, and the normal absorption of fluids and of nourishment by the stomach is interfered with by the vomiting which accompanies obstruction of the intestine.

Against the dangers of suspension of peristalsis in peritonitis there remains to be contrasted only its possible conservative effect in limiting diffusion of the process throughout the general peritoneal cavity. That inhibition of peristalsis is in fact a conservative phenomenon is hardly open to doubt. The occasional success of the opium treatment in cases of diffuse peritonitis before the days of operation attests the correctness of this view, and the Ochsner[22] treatment of appendicitis is based upon this theory. It is not the purpose of this paper to discuss the Ochsner treatment, and it has not been given sufficient trial at the Massachusetts General Hospital to admit of a report upon its value. In fact, so radical a departure from existing tenets of surgical faith requires time for its acceptance. The

dangers of delay in cases which ultimately demand operation and the possibility of error in diagnosis have worked against its general adoption. Cases of peritonitis which are beginning to spread from a local point of origin, such as the appendix, and in which the general cavity presents the condition spoken of above as peritonism rather than peritonitis, can probably be aided toward local limitation by the Ochsner method. Cases, however, in which the greater portion of the peritoneal cavity is already infected, and especially those cases in which a constant source of infection, such as a perforated gastric ulcer or a ruptured appendix abscess, is continually supplying further contaminating material in large amount, the value of the conservative inhibition of peristalsis disappears in the dangers by which it is accompanied,— the dangers of distention, paralysis, toxemia, septicemia and of mechanical hindrance to respiration and circulation.

The advantages of enterostomy in peritonitis are in the main the avoidance of the dangers of distention, by the removal of the decomposing contents of the intestine. The muscular wall of the bowel is enabled to regain its tone and to resume its suspended function. The absorption of ptomaines and bacterial toxins from the intestinal mucosa and their poisonous effects upon the patient are diminished. The escape of bacteria from the intestinal canal into the peritoneal cavity and into the circulation is diminished if not prevented. Pressure upon the diaphragm is relieved and the attendant disturbance to respiration and circulation. In addition to these direct results of enterostomy, however, the surgeon obtains a direct control over the intestine which may be employed to great advantage. Lavage of the bowel through the enterostomy wound promotes the discharge of intestinal contents from far beyond the immediate vicinity of the fistula. A most important aspect of the enterostomy opening is that emphasized by Finney in the statement that it should be regarded "more as a mouth than as an anus." Stimulation, fluids and nourishment may be introduced directly into the portion of the bowel where they are most rapidly absorbed, and where they cannot be immediately rejected by vomiting o by an involuntary dejection. By this means the function of the kidneys may be sustained and the constitutional reaction against the disease supported.

A further advantage of enterostomy which has been noted by many writers is the possibility of the direct introduction of cathartics into the intestine. When a fistula is made, however, lavage of the bowel will be found to supplant the cathartic treatment of peritonitis after operation to a great extent. The reflex inhibition of peristalsis above described and the tendency to paralysis of peristalsis from distention explain the inefficacy of cathartics introduced directly into the bowel at the time of operation in the graver forms of peritoniti. When peristalsis is capable of being excited by magnesium sulphate, its introduction at the time of operation, in the manner advocated by McCosh,[18] produces satisfactory results. When paralysis is present, however, and peristalsis cannot be excited by the irritation of the cathartic, its introduction can have only a toxic effect upon the patient and increase the intestinal irritation and decomposition. During the first twenty-four hours after operation lavage of the bowel is to be preferred. After that time, if spontaneous action does not occur, the use of cathartics introduced through the fistula is generally followed by prompt results.

The disadvantages of an enterostomy are next to be considered and their importance weighed. A fecal fistula is an unnatural condition, extremely revolting to the patient and his attendants and acompanied by dangers of its own. To make a wound in the intestine and insert a Mixter tube prolongs the operation for a few moments, at least, and where every moment under the anesthetic is of importance even this should not be done without its benefit to the patient being well established. After the operation the presence of the enterostomy opening makes the dressings more complicated, and when the fistula is established by the removal of the tube, more frequent and more offensive. The danger of contamination of the peritoneal cavity from the enterostomy wound, before adhesions are established is not to be considered when the Mixter tube is used. After its removal, however, so ling of the wound and continued suppuration must be guarded against by frequent dressings and scrupulous cleanliness. The danger of persistance of the fistula depends largely upon the situation and method of its formation. An opening in the jejunum will rarely close spontaneously on account of the irritating character of the intestinal secretions. Openings in the ileum are less significant in this respect and in the cecum least of all. The nature of the opening in the bowel, whether it is transverse or longitudinal to the long axis, whether it comprises a large or a small portion of the circumference of the intestine, and whether it is above or below the parietal peritoneum, — all are factors which exert an influence upon spontaneous closure. In general it may be said that an opening in the cecum, made by an incision in the long axis of the bowel not more than one-half inch long, and prevented from elevat on above the line of the parietal peritoneum, will almost always close spontaneously. In other cases the persistence of the fistula will demand its closure by operative measures, a serious drawback to the value of enterostomy. Finally, it may be urged that the presence of a fecal fistula increases the adhesions which remain afte the peritonitis and predisposes to hernia and to intestinal obstruction. The dangers and disadvantages of enterostomy are thus of sufficient weight to demand consideration before the operation is adopted. It is obvious also that enterostomy can exert little effect upon certain of the causes of death rom peritonitis. The cases which die in the first twenty-four hours after operation,

whether from the shock of operation or from the septic intoxication of the disease, can be expected to obtain little benefit from enterostomy except that their last hours may be made more comfortable and their distressing vomiting relieved. The cases which survive the operation and recover from the general infection of the peritoneal cavity, only to die of local sepsis and exhaustion or by one of the intercurrent complications, cannot be saved by enterostomy, however much they may have been benefited by the operation in the early stages of their disease. The intermediate cases, however, which ordinarily die from two to five days after operation, with distention, vomiting, low temperature and thready pulse, are the cases which obtain the most marked benefit from enterostomy. In these cases drainage of the bowel reduces the toxemia and relieves the distention, allowing the paralyzed muscles of the intestinal wall to regain their tone and peristalsis to be again established. In such cases the more remote dangers and disadvantages of a fecal fistula are not to be compared with the immediate and positive advantages to be obtained. It is to be regretted that the cases of this nature cannot be selected at the operation, but except within broad limits this does not appear to be possible at the present time. These considerations would appear to justify the performance of enterostomy as a secondary operation. A review of the statistics of secondary operations, however, makes obvious the fact that they have been performed as a rule too late to be of benefit. Diffuse peritonitis is a disease which is measured in hours rather than in days, and delay in waiting for the failure of enemata and cathartics to establish an indication for interference is fatal for the success of the enterostomy when it is performed. Cases of mechanical obstruction due to adhesions which develop in the course of the convalescence from peritonitis demand interference only when the indications are well established, and in these cases, as advised by Lund, a secondary enterostomy is indicated, especially when the cause of the mechanical obstruction cannot be removed by an open operation. The portion of the bowel immediately above the obstruction is the situation to be chosen for opening under these conditions, and secondary closure of the fistula will then be necessary as a rule. In cases of diffuse peritonitis, however, which involve the greater portion of the peritoneal cavity, and especially where paralytic distention is present and no mechanical cause for the obstruction is found, a primary enterostomy is indicated, and for this purpose the cecum is to be preferred. Under these circumstances the mortality of cases of peritonitis treated by enterostomy will still be high, but a certain number of cases will be saved which would otherwise go on to a fatal termination.

The technique of enterostomy is extremely simple The Mixter tube is a bent glass tube of about ½ inch diameter, provided with a flange and collar about ¼ inch apart at the lower end. (Fig. 1.) A purse-string stitch is introduced in the intestine and in its center a linear incision ½ inch in length is made parallel with the long axis



FIG. 1. Mixter tube for enterostomy of cecum. Actual size, about ½ inch in diameter.

of the bowel. In the large intestine the incision should be in the center of one of the longitudinal bands. The flanged end of the tube is inserted into the bowel and the purse-string stitch is tied under the collar, thus preventing leakage and securing the tube from slipping in or out. The end of the purse-string stitch is then carried through the parietal peritoneum just below the margin of the abdominal wound and the opening in the bowel is thus secured below the level of the abdominal wall. (Fig. 2.) The wound is now



FIG. 2. Diagram of Mixter tube in situ, showing purse-string suture and fixation to parietal peritoneum below abdominal wall. Drawings by Miss Florence Byrnes.

dressed in the customary manner and a rubber tube attached to the outer end of the glass tube and conducted through the dressings to a receptacle beside the bed. The chief advantage of the Mixter tube over other methods of enterostomy is the fact that immediate opening of the bowel is obtained without the risk of contamination of the general peritoneal cavity before the necessary time has elapsed for the formation of protective adhesions. The flange and collar also prevent the tube from slipping too far in or too far out of the bowel, an accident which is not infrequent when a rubber tube or catheter is used. Another advantage of hardly less importance is the fact that the fistula remaining

after a Mixter tube enterostomy is below the parietal peritoneum and closes spontaneously in many cases. Tubes of varying weight and size are provided to suit the size of the intestine which is to be opened, and a lighter tube than the one described is advisable for introduction in the small intestine. The purse-string stitch cuts out as a rule from the fourth to the seventh day and the tube comes away. After this has occurred the fistula must be treated by frequent irrigation and its closure promoted by drawing together the edges of the wound. Secondary suture of the fistula in the wound is frequently successful, and if the indications for immediate closure are sufficient, anastomosis or resection may be done. Resection was not necessary in any of the cases here reported. The selection of the cecum rather than the ileum or jejunum for enterostomy has been widely discussed. The jejunum appears to be ill adapted to the purpose for a number of reasons, owing to the facts that the jejunal secretions are extremely irritating to the wound, that the drainage is too high to be effective, that death from inanition threatens unless nutrition is artificially maintained, and that immediate closure of the fistula by operation is attended by a high mo tality. Between the ileum and the cecum no such potent reasons enter into the decision and it is more a matter of the indications of the special case. In cases of diffuse peritonitis, where mechanical causes for obstruction are not found, as a rule the cecum is to be preferred. Paralytic distention affects the large more readily than the small intestine because of its thinner wall. The fistula in the cecum drains the ileum to a certain extent, whereas drainage of the ileum does not affect the cecum. The fistula in the cecum is less irritating, does not affect nutrition and generally closes spontaneously without operative interference. Its lateral situation also makes later mechanical obstruction from adhesions less probable than when the ileum is attached to the abdominal wall.

Forty-one cases of diffuse peritonitis were treated by enterostomy in addition to other operative measures, at the Massachusetts General Hospital between January, 1900, and March, 1904. In 24 cases enterostomy was done at the first operation and of this number 5 cases recovered, 21%. In 17 cases it was done as a secondary operation, generally when the patient was moribund, and only one case recovered. The technique of operation emp'oyed for the diffuse peritonitis is detailed in the abstract of cases, but it may be said that multiple incision, irrigation with salt solution and drainage were employed in the majority of cases. No case that was not actually moribund was refused the possible benefit of operation.

Of the 24 cases of diffuse peritonitis in which primary enterostomy was done, 17 were due to appendicitis and one each to the following causes: cancer of colon with perforation, pancreatitis, perforation of gastric ulcer, stab wound of intestine, cholecystitis, typhoid perforation and post-operative peritonitis. Of the 17 cases of secondary enterostomy 10 were due to appendicitis and one each to the following causes: cancer of colon with perforation, rupture of intestine, pyo-salpinx, perforation of gastric ulcer, perforation of duodenal ulcer, stab wound of intestine and post-operative peritonitis.

Of the 24 cases of primary enterostomy, 19 died. Eleven of this number, 58%, died within twenty-four hours, 2 in the second day, 2 in the third day, and 4 after more than four days had elapsed, on the fifth, sixth, twelfth and thirteenth days. The actual cause of death in the last four cases was determined at autopsy in three instances. One case was due to pancreatitis and diabetes with no further evidence of peritonitis, one to acute fibrinous peritonitis without free pus but with a gangrenous local abscess in the pelvis, and another to a local peritoneal abscess without general infection or distention. In the fourth case no autopsy was obtainable, but death occurred on the thirteenth day after operation and was apparently due to a local abscess in the pelvis. The symptoms of diffuse peritonitis had subsided and peristalsis was well established. In each of these four cases benefit was obtained from the enterostomy, although a fatal result of the disease was not prevented. Of the 19 cases which died 4 only are left as having died on the second, third and fourth day after operation, or 21%. Of the 16 cases of secondary enterostomy which died, one died within twenty-four hours of the first operation, 8 on the second, third and fourth days, 50%, and 7 after the fourth day. In this connection the statistics recently collected by Dr. W. C. Quinby of Boston are of interest. Of 81 cases of undoubted diffuse peritonitis after appendicitis at the Massachusetts General Hospital, 57 cases died, 70%. Of this number, the deaths on the first day after operation were 29%, on the second, third and fourth days after operation, 31%, and after four days, 40%. These figures emphasize two facts in connection with primary enterostomy. The operation has been done only in the graver cases of peritonitis, as shown by the number of cases which died within twenty-four hours, 58% against the 29% of all cases collected by Dr. Quinby. The number of cases dying on the third, second, and fourth days is also reduced by enterostomy from 50 and 31% to 21%. It is to be noted therefore that in spite of the fact that enterostomy has been done as a primary operation only in the graver cases of peritonitis, the mortality of the second, third and fourth days has been notably diminished. Under these circumstances the operation must be accorded a place as a measure of value in cases of grave diffuse peritonitis.

Five cases recovered after primary enterostomy. In four of these cases the peritonitis was due to appendicitis. The process in each case was diffuse throughout the abdominal cavity so far as could be ascertained by multiple incisions, and cultures showed the colon bacillus in three cases and streptococci in the fourth. The fifth case was due to perforation of a gastric ulcer which

had occurred about six and one-half hours previously, and a diffuse peritonitis, with turbid serum and fibrin, was found over all the accessible portions of the abdominal cavity. In this case cultures were negative with regard to the presence of bacteria. No anerobic cultures were made, however, and proof of the presence of bacteria by cover-glass examination of the fluid was not attempted. In all five cases the severity and extent of the infection of the peritoneal cavity were such as to lead the surgeon operating to the belief that the usual operative measures would not be sufficient to ward off a fatal termination. That five such cases recovered would alone appear to justify the operation. In four of these cases the cecum was opened. One closed spontaneously on the eighth day, one on the seventeenth day and one after six weeks. One case was closed by a purse-string suture on the fifth day and never leaked. In the fifth case the ileum was opened and the fistula discharged slightly for ten weeks before closing spontaneously. In the one case of secondary enterostomy which recovered, the fistula was successfully closed on the fourteenth day by a purse-string stitch.

To sum up the points covered in this paper it may be said:

(1) The obstruction of the intestine in diffuse peritonitis is the result of a combination of causes.

(2) The most important cause is suspension or paralysis of peristalsis.

(3) Paralysis of peristalsis is due to inhibition, to toxic paralysis and to the paralysis of distention.

(4) Mechanical causes such as infiltration of the bowel wall and light adhesions in certain cases contribute to this paralysis.

(5) Pure mechanical obstruction due to adhesions is the result of chronic or local peritonitis of at least some days' duration.

(6) Enterostomy is indicated in addition to other operative measures in the graver forms of diffuse peritonitis.

(7) Its greatest advantage is the drainage of the gases and decomposing contents of the bowel and the relief of paralysis of peristalsis.

(8) By enterostomy the surgeon obtains direct control over the intestine for lavage and for the introduction of stimulants, nourishment, fluids and cathartics.

(9) For the relief of paralysis of peristalsis primary enterostomy is to be preferred to the secondary operation.

(10) Enterostomy is best performed by the use of the Mixter tube.

(11) The cecum is the most satisfactory part of the bowel for a primary enterostomy, and the jejunum is to be avoided.

(12) Spontaneous closure of the fistula may be expected when the cecum is opened, if the opening is kept below the level of the parietal peritoneum.

(13) By the systematic use of enterostomy in the graver forms of diffuse peritonitis the number of patients dying on the second, third and fourth days after operation is reduced.

(14) The symptoms of visible peristalsis and spasmodic pain in intestinal obstruction indicate a mechanical cause for the obstruction.

(15) The persistence of these symptoms, unrelieved by enemata and cathartics, is an indication for operation.

(16) Under these circumstances the cause of the obstruction should be removed if possible by operation.

(17) In advanced cases of obstruction of this form enterostomy of the coil of intestine nearest above the obstruction should be done.

ABSTRACT OF CASES.

PRIMARY ENTEROSTOMY.

1. Dr. C. A. Porter, 1902; age forty-five, pancreatitis, diabetes, peritonitis, seven days' duration, pulse 110, respiration 30, temperature 100.6, whites 34,000, tympanites; 2 incisions, irrigation, Mixter tube in descending colon, drainage, purulent bloody exudate in pelvis and between coils; culture streptococcus and bacillus mucos. caps. Died in five days. Autopsy, no general peritonitis, adhesions, abscess in pelvis, pneumonia, chronic pancreatitis.

2. Dr. C. A. Porter, 1901; age twenty-three, appendicitis, peritonitis, four days' duration (?), pulse 100, respiration 34, temperature 100.4, whites 16,000, tympanites; 2 incisions, irrigation, Mixter tube in cecum, appendectomy, drainage, sero-pus in right and left flanks and pelvis and between coils; streptococci. Recovery; no fecal discharge after tube removed on eighth day.

3. Dr. C. A. Porter, 1901, age twenty-six, appendicitis, peritonitis, four days' duration, pulse 150, respiration 30, temperature 104, no tympanites; 2 incisions, irrigation, appendectomy, Mixter tube in cecum, drainage, thick pus in flanks and pelvis and between coils; colon bacillus; magnesium sulphate given through fistula. Died twelve hours. No autopsy.

4. Dr. E. A. Codman, 1902; age ten, appendicitis peritonitis, two days' duration, pulse 140, respiration 24, temperature 101.6, whites 19,000, tympanites; 2 incisions, irrigation, appendectomy, catheter tied in cecum, drainage; foul pus right flank, purulent fluid left side, pelvis and between coils. Lavage and catharsis by fistula. Died in ten hours. No autopsy. The catheter was introduced in the cecum in this case by Kaders method for gastrostomy.

5. Dr. C. A. Porter, 1902; age twenty-two, stab wound of colon, five days' duration, pulse 100, respiration 25, temperature 101, whites 15,000, tympanites; one incision, irrigation, Mixter tube in descending colon, drainage; turbid fluid in left flank and pelvis, no culture. Lavage and nourishment by fistula. Died six days later. Autopsy, fibrinous peritonitis, no free pus, abscess in pelvis.

6. Dr. E. A. Codman; 1901, age five, appendicitis, peritonitis, four days' duration, pulse 180, respiration (?), temperature 107, tympanites; one incision, irrigation, two Mixter tubes in ileum at and above ileocecal valve, drainage; pus throughout, no culture. Died in two hours. No autopsy.

7. Dr. E. A. Codman, 1901; age fifty-three, cholecystitis; peritonitis, two days' duration, pulse 138, respiration 26, temperature 104, whites 21,000, tympanites; one incision, irrigation, Mixter tube in cecum, drainage, pus throughout; colon bacillus; lavage of bowel and cathartics introduced by fistula. Died in twelve hours. No autopsy.

8. Dr. E. A. Codman, 1901; age thirty-seven, appendicitis peritonitis, four days' duration, pulse 104,

respiration 30, temperature 103, whites 4,800, tympanites; 2 incisions, irrigation, 2 Mixter tubes, in ileum and in cecum, drainage; pus throughout; colon bacillus; salt solution and cathartics by fistula. Died in forty-eight hours. No autopsy.

9. Dr. S. J. Mixter; 1902, age nineteen, appendicitis, peritonitis, duration (?), pulse 100, respiration 20, temperature 98.6, whites 15,000, no tympanites; one incision, irrigation, appendectomy, tube in cecum, drainage; pus in right and left flank, pelvis and between coils; colon bacillus; salt solution and cathartics by fistula. Recovery; fistula closed on fifth day by purse-string, no leakage.

10. Dr. R. B. Greenough, 1902; age twenty-three, appendicitis, peritonitis, one day's duration, pulse 100, respiration 35, temperature 103, whites 11,000, tympanites; 2 incisions, irrigation, Mixter tube in cecum, drainage; cloudy serum throughout; colon bacillus; lavage, and catharsis by fistula. Recovery; attacks of hypogastric distention in convalescence relieved by lavage of colon by fistula, fistula closed spontaneously in six weeks.

11. Dr. R. B. Greenough, 1902; age six, appendicitis, peritonitis, two days' duration, pulse 150, respiration 50, temperature 103.8, whites 10,600, tympanites; 2 incisions, irrigation, appendectomy, Mixter tube in cecum, drainage; pus throughout; colon bacilli. Died in twelve hours. No autopsy.

12. Dr. R. B. Greenough, 1902; age twenty-one, perforation of gastric ulcer, peritonitis, six and a half hours' duration, pulse 100, respiration 30, temperature 101, whites 21,000, tympanites; 3 incisions, ulcer closed by suture, posterior gastro-enterostomy by McGraw ligature, irrigation, Mixter tube in cecum, drainage; turbid serum throughout; culture negative; fistula used for drainage and catharsis, no distention after lavage on second day, fistula closed spontaneously on seventeenth day. Recovery.

13. Dr. G. W. W. Brewster, 1900; age forty-seven, appendicitis, peritonitis, four days' duration, pulse 140, temperature 101, no white count, tympanites; one incision, no irrigation, Mixter tube in ileum, drainage; pus throughout; culture mixed growth, cocci and bacilli. Died in three hours. No autopsy.

14. Dr. Farrar Cobb, 1902; age sixty-three, perforation above cancer of colon, peritonitis, three hours' duration, pulse 110, respiration 32, temperature 100, whites 9,000, tympanites; one incision, irrigation, Mixter tube in perforation of colon, drainage, fluid feces throughout peritoneal cavity. Died in ten hours. Autopsy, general fibrino-purulent peritonitis and cancer.

15. Dr. J. C. Warren, 1903; age forty-two, appendicitis, peritonitis, two days' duration, pulse 120, respiration 30, temperature 102, whites 25,000, tympanites; one incision, irrigation, Mixter tube in cecum, appendectomy, drainage; pus throughout; no cultures; fistula used for drainage, lavage and catharsis, no further distention. Died in twelve days. Autopsy, large local abscess in central portion of peritoneal cavity.

16. Dr. R. B. Greenough, 1903; age twenty-seven, appendicitis, peritonitis, six and a half hours' duration, pulse 95, respiration 20, temperature 99.3, no white count, no tympanites; 2 incisions, irrigation, appendectomy, drainage, Mixter tube in ileum, turbid serum in right and left flank, pelvis and between coils; culture colon bacillus. Recovery. Much discharge from fistula, lavage of bowel, no distention, fistula closed spontaneously in ten weeks.

17. Dr. J. G. Mumford, 1903; age fifty-nine, appendicitis, peritonitis, thirty-six hours' duration, pulse 136, respiration 45, temperature 103, whites 21,000, tympanites; one incision, irrigation, Mixter tube in cecum, drainage; pus throughout; colon bacillus. Died in eight hours. No autopsy.

18. Dr. G. W. W. Brewster, 1903; age sixty-four, diffuse peritonitis after operation for resection of colon for cancer with lateral McGraw anastomosis, duration forty-eight hours, pulse 120, respiration 24, temperature 101, no white count, tympanites; operation for peritonitis by 2 incisions, irrigation, 2 Mixter tubes in ileum and in cecum, drainage; pus throughout; no cultures. Died in ten hours. Autopsy showed diffuse purulent peritonitis due to leakage from end of bowel closed by purse-string.

19. Dr. F. B. Harrington, 1903; age forty-three, appendicitis, peritonitis, four days duration, pulse 120, respiration 34, temperature 100, whites 10,000, tympanites; 2 incisions, irrigation, appendectomy, Mixter tube in cecum, drainage; pus throughout; no culture; fistula used for lavage, drainage and stimulation by hot salt solution every two hours; no vomiting, delirium and sepsis. Died two and one-half days. No autopsy.

20. Dr. J. G. Mumford, 1904; age thirty-three, typhoid fever perforation and peritonitis, twenty-four hours' duration, pulse 120, respiration 28, temperature 105, white count 4,300, tympanites (?); one incision; treated dry, Mixter tube in perforation in jejunum, drainage, cloudy fluid with flakes of fibrin throughout; no culture. Died in six hours. No autopsy.

21. Dr. J. G. Mumford, 1904; age fifty-five, appendicitis, peritonitis, four days' duration, pulse 120, respiration 28, temperature 104.4, whites 11,000, tympanites; median incision, treated dry, Mixter tube in cecum, appendectomy, drainage, pus throughout; no culture. Died in ten hours. No autopsy.

22. Dr. F. G. Balch, 1904; age sixty-seven, appendicitis, peritonitis, five days' duration, pulse 120, respiration 30, temperature 101.8, whites 19,000, tympanites; one incision, irrigation, Mixter tube in ileum, appendectomy, drainage, foul pus throughout; no culture; fistula used for drainage, lavage, stimulation and catharsis. Died in thirty-six hours. No autopsy.

23. Dr. R. B. Greenough, 1904; age twenty-one, appendicitis, peritonitis, seven hours' duration (appendicitis, five days' duration), pulse 140, respiration 24, temperature 101, whites 9,000, no tympanites; 5 incisions, irrigation, appendectomy, Mixter tube in cecum, drainage, thin pus throughout; colon bacillus and bacillus mucosus capsulatus. Patient survived the symptoms of diffuse peritonitis but died on thirteenth day from pelvic abscess. No autopsy.

24. Dr. D. F. Jones, 1904; age thirty-four, appendicitis, peritonitis; operation for local abscess four days after first symptoms, five days later diffuse peritonitis and second operation, pulse 124, respiration 30, temperature 99.8, whites 62,000, tympanites; one incision, irrigation, Mixter tube in ileum, drainage, pus throughout, no culture, fistula used for drainage, and for introduction of nourishment and cathartics. Died in forty-eight hours. No autopsy.

SECONDARY ENTEROSTOMY.

25. Dr. C. L. Scudder, 1901; age forty, pyo-salpingitis, diffuse peritonitis, two days' duration, pulse 120, respiration 32, temperature 100.8, whites 26,000, tympanites; one incision, irrigation, salpingectomy, drainage, pus throughout; no growth on culture, bacteria by cover glass; twenty-four hours later Mixter tube in ileum for distention, cathartics introduced by fistula, drainage. Died in thirty hours. No autopsy.

26. Dr. C. A. Porter, 1901; age fourteen, appendicitis, peritonitis, twenty-four hours' duration, pulse 124, respiration 36, temperature 100.8, whites 17,000, tympanites (?); 3 incisions, irrigation, drainage; pus

throughout; forty-eight hours later Mixter tube in colon, drainage. Died in twelve hours. Autopsy, acute general fibrino-purulent peritonitis.

27. Dr. F. G. Balch, 1901; age twenty-one, perforated duodenal ulcer, twenty-four hours' duration, pulse 120, respiration 30, temperature 102.4, whites 24,000, no tympanites; 2 incisions, irrigation, drainage, appendix removed, thin pus throughout; culture showed diplococci, varied bacteria by cover-glass; twenty hours later Mixter tube in ileum on right for distention, used for stimulation and drainage. Died in twelve hours. Autopsy, general purulent peritonitis, from perforated duodenal ulcer.

28. Dr. F. G. Balch, 1901; age twenty-four, appendicitis, peritonitis, two days' duration, pulse 112, respiration 21, temperature 103, whites 15,000, tympanites (?); one incision, dry sponging, drained, pus in right flank, turbid serum in left flank, pelvis and between coils; culture of serum, colon bacillus; forty-eight hours later Mixter tube in ileum on right for distention and vomiting. Died in six hours. No autopsy.

29. Dr. C. A. Porter, 1902; age forty-four, appendicitis, peritonitis, two and a half days' duration, pulse 120, respiration 30, temperature 102, whites 23,000, no tympanites; 2 incisions, irrigation, appendectomy, drainage; pus throughout; culture colon bacillus; forty-eight hours later Mixter tube in cecum. Died in ten hours. No autopsy.

30. Drs. F. Cobb and C. A. Porter, 1902; age fifty-two, peritonitis after ileo-colostomy, three days' duration, pulse 130, respiration 30, temperature 101.6, whites 14,200, tympanites; one incision, drainage; no irrigation, pus in right flank and between coils; no culture; seventy-two hours later Mixter tube in ileum, drainage. Died in twenty hours. Autopsy, general purulent peritonitis.

31. Dr. S. J. Mixter, 1901; age 17, appendicitis, peritonitis, duration four days, pulse 90, respiration 24, temperature 102.6, whites 24,600, slight tympanites; one incision, irrigation, drainage; pus throughout; colon bacillus and streptococcus; four days later Mixter tube in cecum for distention, used for drainage and catharsis. Died twelve hours later. No autopsy.

32. Dr. W. A. Brooks, Jr., 1901; age nineteen, appendicitis, peritonitis, three days' duration, pulse 112, respiration 34, temperature 101.4, whites 14,800, slight tympanites; 2 incisions, irrigation and drainage, pus throughout; no culture; twelve hours later Mixter tube in "bowel," drainage and catharsis. Died in ten hours. No autopsy.

33. Dr. E. A. Codman, 1901; age nineteen, appendicitis, peritonitis, two days' duration, pulse 120, respiration 20, temperature 100.2, whites 13,400, no tympanites; one incision, dry sponging, no irrigation, drainage; turbid serum throughout; colon bacilli; five days later Mixter tube in presenting coil. Died in four hours. No autopsy.

34. Dr. E. A. Codman, 1901; age thirty, appendicitis, peritonitis, two days' duration, pulse 88, respiration 24, temperature 99, whites 28,700, slight tympanites, one incision, appendectomy, irrigation, drainage, fluid throughout; no growth of bacteria by culture, no cover glass examination; four days later Mixter tube in presenting coil of bowel for distention, with relief, opening closed on fourteenth day by purse-string without leakage. Recovery. Ten months later intestinal obstruction by adhesions, operation and recovery.

35. Dr. R. B. Greenough, 1901; age forty-eight, perforation gastric ulcer, peritonitis, twelve hours' duration, pulse 96, respiration 28, temperature 97, whites 12,000, slight tympanites; one incision, perforation closed, irrigation, drainage, milky contents of stomach throughout; no culture; forty-eight hours later Mixter tube in cecum for distention. Died in three hours. No autopsy.

36. Drs. M. H. Richardson and J. G. Mumford, 1900; age twenty-three, traumatic rupture of liver and intestine, two days' duration, pulse 104, respiration 24, temperature 100, no blood count, slight tympanites; one incision, resection of part of liver, suture of intestine, irrigation, puncture of bowel and injection of magnesium sulphate, drainage, blood throughout peritoneal cavity; no cultures; forty-eight hours later Mixter tube in ileum for distention, fistula used for drainage and cathartics. Died in forty-eight hours more. No autopsy.

37. Dr. Farrar Cobb, 1900; age twenty-eight, stab wound of intestine and peritonitis, twenty-four hours' duration, pulse 140, respiration 31, temperature 104, no white count; one incision, closure of intestinal wound, irrigation, drainage, pus and feces throughout cavity; five days later Mixter tube in presenting coil for distention. Died in twenty-four hours. No autopsy.

38. Dr. Farrar Cobb, 1901; age eight, appendicitis, peritonitis, two days' duration, pulse 145, respiration 50, temperature 103, whites 32,000, no tympanites; one incision, appendectomy, irrigation, drainage; pus throughout; no growth on culture; twenty-four hours later Mixter tube in sigmoid for distention, fistula used for drainage, lavage and for introduction of nourishment and cathartics, distention relieved. Died six days later with flat abdomen, pelvic abscess and opening in bladder. No autopsy.

39. Dr. Farrar Cobb, 1902; age twenty-four, appendicitis, peritonitis, two days' duration, pulse 104, respiration 34, temperature 103.4, no white count, tympanites; 2 incisions, appendectomy, irrigation, drainage; cloudy fluid containing colon bacilli by cover glass and culture throughout cavity; forty-eight hours later Mixter tube in presenting coil for distention. Died in two hours. No autopsy.

40. Dr. C. L. Scudder, 1901; age fifty-six, peritonitis from perforation above cancer of colon, six days' duration, pulse 128, respiration 28, temperature 100.8, tympanites, no blood count; 2 incisions, irrigation, suture of colon for later enterostomy, drainage; pus throughout; colon bacillus; colon opened by incision on third day, no improvement. Died two days later. Autopsy, general fibrino-purulent peritonitis.

41. Dr. M. H. Richardson, 1904; age six, appendicitis, peritonitis, three days' duration, pulse 150, respiration 60, temperature 102, whites 40,000, no tympanites; one incision, irrigation, drainage; pus throughout; no cultures; three days later, ileum opened in wound for distention with immediate relief. Fistula used for drainage, but nourishment introduced was not retained; another fistula high in jejunum developed spontaneously on fifth day (?), digestion of wound occurred and patient died on ninth day of starvation and sepsis. Distention recurred just before death. No autopsy.

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A COMPARATIVE STUDY OF THE DEATH RATES FOR THE STATE OF MASSACHUSETTS FOR THE YEARS 1850, 1875 AND 1900.

BY WILLIAM F. WHITNEY, M.D., BOSTON.

As is well known, the annual death rate is calculated from two factors, the number of persons alive at the middle of the year and the total deaths occurring during the entire year, and is expressed in terms of so many of the latter to one thousand of the former. The population is only obtainable when a census is taken, which, for Massachusetts, is once in five years. On the other hand, the deaths can be had each year from the Registration Report of Vital Statistics of the State; but from the variation due to epidemics or other causes, the results based on the returns of a single year may be misleading. This can be obviated by taking the average for five years, and the rates which are given below have been figured on that basis, with the census year as the central point of a quinquennial group.

The recently published report for 1902 enables the estimate to be made for 1900 for comparison with the preceding decennia, which are available already.

First of all let us consider the general death rate for each of the ten years from 1850 to 1900, which for one thousand persons living at all ages is as follows:[1]

Year.	Rate.	Year.	Rate.	Year.	Rate.
1850	16.69			1880	19.27
1860	18.73	1875	20.01	1890	19.77
1870	19.45			1900	17.20

In looking at these it is evident that the highest lies midway, while the extremes differ but little from each other. These three are the ones then that should be carefully studied; but their single figure, while it is suggestive, does not tell the whole story by any means, and it will be only after an analysis of their component parts that we can hope to learn it.

To begin with, the rates for the sexes should be found separately, and they are as follows:

MALES (All Ages).

Year.	Rate.	Year.	Rate.	Year.	Rate.
1850	18.60	1875	20.61	1900	18.06

FEMALES (All Ages).

1850 — 16.50	1875 — 19.30	1900 — 16.42

[1] In order that the reader may have a general idea of the size and increase of the population in this community, it may be briefly stated that in 1850 the population was 994,514, and the deaths 16,606, while in 1900 it was 2,805,346 and 48,278, respectively.

If the sexes alone are compared, it will be seen that the rate for females is always lower than that for the males; but in 1875 they were the nearest together. If now each sex is looked at for the fifty years, both will be found to have a lower rate at the end of the century than in 1850, although when the aggregate was taken, as is seen above, the reverse appeared to be true. The explanation is that the proportion of women was greater then than now, and their lower rate made itself felt.

The next step should be to take into account age as well as sex, and for preliminary consideration life may be divided into two periods. The one comprising all ages up to thirty, the other, all over it. These are the figures:

MALES.

	Year.	Rate.	Year.	Rate.	Year.	Rate.
Under 30,	1850 —	15.85	1875 —	20.19	1900 —	14.86
Over 30,	1850 —	17.90	1875 —	21.57	1900 —	22.15

FEMALES.

	Year.	Rate.	Year.	Rate.	Year.	Rate.
Under 30,	1850 —	15.67	1875 —	18.08	1900 —	12.45
Over 30,	1850 —	17.99	1875 —	21.07	1900 —	21.47

Looking at the first half of life, there is a marked rise from 1850 to 1875, with a greater drop in 1900, and a resulting increased difference between the males and females, in favor of the latter.

Turning now to the period over thirty, the picture is not so pleasant to contemplate, for it shows a steady rise for both sexes from the beginning to the present time, with a little more increase for the females than the males. The only encouraging fact is that during the last twenty-five years it has been *apparently* less than before.

But still further subdivision is necessary, and each of the milestones must be examined to arrive at a true conclusion as to exactly where the gain or loss lies. These are given in the following tables:

MALES.

Age.	1850.	1875.	1900.
0 – 1	138.53	172.24	159.55
1 – 5	38.10	35.65	19.78
5 – 10	8.65	9.24	4.48
10 – 15	3.90	4.12	2.77
15 – 20	5.70	6.52	4.63
20 – 30	8.68	9.91	7.22
30 – 40	10.09	10.43	8.92
40 – 50	12.74	12.74	12.48
50 – 60	19.00	18.87	21.71
60 – 70	32.36	35.91	43.19
70 – 80	68.86	77.06	89.02
80 – 100	171.82	180.08	196.24

FEMALES.

Age.	1850.	1875.	1900.
0 – 1	133.91	165.19	146.84
1 – 5	35.20	32.82	18.31
5 – 10	7.97	9.64	4.29
10 – 15	4.52	4.95	2.77
15 – 20	8.00	7.87	4.37
20 – 30	11.53	10.55	6.39
30 – 40	12.50	10.96	8.12
40 – 50	11.97	11.50	10.94
50 – 60	16.06	18.03	19.00
60 – 70	28.54	31.99	36.33
70 – 80	61.94	65.84	78.82
80 – 100	159.40	165.29	180.54

In these, also, 1900 shows a marked decrease, for every period from one year to fifty for both sexes; but from that time till the end of life there is a distinct increase.

If 1850 and 1875 are taken alone into account, there is an increase at every period except from one to five years for both sexes, and from twenty to fifty for females. He would have been a wise man, however, who could have foretold at that time what that little rift in the cloud meant, and with the marked rise everywhere else, the outlook for the future must have seemed very gloomy.

But in spite of the splendid gain that has been made in 1900, there remains much to be done, and the very first line in each of the above tables arrests the attention at once. And the question immediately suggests itself, Why is it that with all the progress that has been made in the other periods of childhood and early life, the death rate for infants under a year is still greater than in 1850? Possibly it may be answered that, although the modification of milk has modified the terrible rate of 1875, it has not been able to equal wholly the maternal combination, which very likely was poured out more freely in 1850 than now, and this, with better air from less crowding, kept down the death rate. But that may not be all, and it is probable that other points of attack might be found if the story of the first year could be written for each month in the Registration Report, especially if it was still further combined with that for the seasons of the year. When it is recalled that the deaths under one year are about ten thousand annually, more than a fifth of the total of all ages, too much attention cannot be given to this period, for it is here, let us hope, that race preservation may neutralize the effects of "race suicide."[2]

But it is not from statistics alone that it can be accomplished; they may be able to show the point at which the greatest care should be exercised, but it depends upon the practitioner to develop and carry this out. If in some way this necessity can only be brought home to him, it must surely lead to redoubled exertions on his part, both for more careful diagnosis and treatment.

And all the more so when he appreciates that it is only in early life that we are encouraged to look for any substantial gain. For after fifty we find there has been a steady increase in the death rate for each decade of life since 1850, and it has been a little greater during the last twenty-five than the first. This again reverses the figures obtained when only the aggregate of all under and over thirty were taken. As to the two sexes, the actual amount is about the same, but as the females started lower, the proportion is a little greater for them.

In conclusion, what does a comprehensive view of the picture show of the expectancy of life then and now? The children that were born in 1850 stood a better chance of reaching the end of their first year, while from that time on the infectious diseases claimed many victims; but those who reached fifty could look forward more confidently to an old age.

In 1875 the new era of medicine had only just begun, and with the passing away of the quieter and simpler modes of living, with the crowding out of fresh air and sunshine, the natural checks upon infection were broken down, and the result was what would be expected. But, fortunately, to-day preventive medicine and hygiene have been able to minimize infection, and thus to more than offset the evil effects of our concentrated, high-pressure civilization up to fifty; after that period, however, modern science appears to be powerless against the diseases of old age, to which the survivors of this strenuous existence seem more readily to succumb.

[2] The following figures show the decrease in the birth-rate for 1,000 females between the ages of 15 and 50: 1850, 97.6; 1875, 91.5; 1900, 88.8.

Clinical Department.

BOSTON CITY HOSPITAL CLINICAL CLUB.

MARCH MEETING.

DR. G. G. SEARS in the chair. DR. L. R. G. CRANDON, secretary.

There were sixty-five members present, and cases and reports were presented as follows:

SEPTICEMIA FROM THE BACILLUS MUCOSUS CAPSULATUS.

BY ABNER POST, M.D., BOSTON.

THE patient, Charles Pothoff, a native of Holland, thirty-seven years old, and married, entered the hospital with a condition which it was supposed might be due an embolus of the femoral artery of the right thigh. For two weeks he had had pain all over his body, especially in the larger joints. Twenty-four hours before entrance, the pain seemed to localize about the right knee, but the patient's account of his symptoms was not very definite.

On entrance, the right leg was greatly swollen from Poupart's ligament to the toes. It was mottled with purpuric spots and the thigh measured five inches more in circumference than the left. Pulsation of the arteries of leg and thigh could not be made out.

Examination showed that there was little change in surface temperature. The foot was not cold, nor was there any interference with the circulation, as the color returned immediately when pressure was made on the nails. The inability to feel the pulsation was due to the great swelling.

It was not an ordinary cellulitis, though it might easily have been mistaken for one. There was no wound to serve as a point of infection. There was no fluctuation, nor especial tenderness. There was no distention that called for an incision. The blood count showed 24,500 whites. One thought of an infection of the gas-producing bacillus, but there was no subcutaneous crackling, and the general condition was entirely different. There was no restlessness nor delirium. The swelling decreased in a few days, and on February 6 it was noted that the right leg was much less swollen, but redness, with a well-defined border like that of erysipelas, extended for a few inches above Poupart's ligament. This subsided in a day or two.

On Feb. 7 there was pain and swelling in left leg, but to a much less degree than the previous swelling

in the right leg, and it subsided more rapidly. The white count on Feb. 13 was 12,000. Meanwhile, Feb. 17, a small incision was made in the right leg and a specimen taken, which showed the presence of the *Bacillus capsulatus mucosus*. The little cut healed by first intention. The patient was never very sick. He lost weight and strength, but not to a marked degree. Up to the time the patient left the hospital various areas continued to be swollen. These areas were fairly well defined. They appeared and disappeared irregularly; at one time there was a well-marked but not very acute lymphangitis of the right leg.

March 6, there was considerable swelling and tenderness of the dorsum of the left foot. A specimen of urine taken by catheter on March 17 showed absolutely nothing.

On the evening of entrance this man's temperature was 101, and pulse 110. Temperature reached 102 Feb. 8 and 9, and became normal on Feb. 25. His pulse was about 90 most of his stay, but fell to about 70 the day before his discharge.

This case in appearance and course was peculiar, and the bacteriological examination alone could solve the mystery. The recurrent swellings, evidently due to some constitutional condition, did not conform to any recognized form of disease. The case seems worthy of note, as it shows a condition hitherto undescribed — at least no case of general septicemia with such recurrent swelling due to the *Bacillus capsulatus mucosus* in the general circulation has found its way into medical literature.

The patient was discharged with normal pulse and temperature, but pale and weak, and with some swelling of the left foot. He promised to return if there were further symptoms. The bacteriological investigations were made by Dr. C. W. Duval, who submits the following bacteriological analysis:

BACTERIOLOGICAL ANALYSIS.

Technique: Blood specimen aseptically obtained from subcutaneous tissue over tibia of involved leg. Incision made penetrating vascular layer of dermis, and approximately 3 cm. of blood and serum removed by sterile pipette and placed in bacillon suspension. From this suspension a series of six agar-gelatin plates were inoculated, and incubated at 37° C. for twenty-four hours. All plates showed numerous semi-transparent, soft, glistening, mucoid colonies, ranging from 1 to 2 mm. in size.

Some days later a second specimen was obtained from the involved limb, about the middle of the thigh. Whole anterior surface cleaned as for a surgical operation. The skin was scarified with a sharp sterile knife until bloody serum exuded. Ten to fifteen loops of this bloody serum was collected in sterile bacillon, and from the suspension agar-gelatin culture plates were seeded as before. After twenty-four hours in the incubator at 37° C., colonies identical in every way with those on the first series of plates appeared. No plate contained less than a dozen colonies. Both the first and second series of plates gave a pure culture.

Third specimen of blood obtained two weeks later. The median basilic vein of left arm was entered with a large hyperdermic syringe and 15 cm. of blood withdrawn. A series of 8 plates inoculated, using 1 to 2 cm. of the blood per plate. The plating was done immediately after blood was drawn from vein. Agar-gelatin tubes had been liquified and cooled to temperature of 41° C. Into each tube of the melted medium a given quantity of blood was introduced before the blood coagulated. The tubes were well shaken to equally distribute the injected blood, and poured into plates, using every precaution against contamination, both in the technique of drawing off the blood and in plating. The plates, after twenty-four hours in incubator, showed the same mucoid colony growth as described in the case of first and second plate specimens. Two plates of the series contained 50 to 100 superficial colonies. Colonies were sub-cultured from the plates of all three series, and the morphology and cultural characteristics observed to be that of *B. Mucosus capsulatus*.

Morphology. — Non-motile, short rods with rounded ends, many almost coccal in shape, varying from 1 to 2 microns in length, and from 0.5 to 1.0 microns in width, occur singly and in pairs. Do not take the Gram's stain. Mucilaginous capsules easily demonstrated by either the Welch or Hiss method, regardless of medium on which bacillus was grown.

Cultural features.—The bacillus grows readily on all the ordinary culture media, and always mucoid or sticky in character when on solid medium. On litmus milk, fermentation with acid production occurs, but never coagulation. Semi-solid medium (containing 1% dextrose) shows slight gas production in twenty-four hours. Mannite serum water shows acid production by pink change in medium, no coagulation. Dextrin serum water shows no change. Dextrose serum water gives acid production and coagulation of medium after forty-eight hours.

In stab cultures there is some tendency to nail-head appearing at exit of needle. This is not true in stab inoculation of a more soft medium, as, for example, semi-solid medium of Hiss.

Conclusion. — In all three platings of blood specimens from the case, a pure growth of a bacillus was obtained, corresponding in morphology and cultural features to that of *B. mucosus capsulatus*.

Bacteriological analysis of the urine gave negative results.

AMPUTATION AT HIP JOINT.

BY W. P. BOLLES, M.D., BOSTON.

THE patient is a girl eighteen or nineteen years old, who has had a tuberculous hip for eleven years. During the first two years she had a number of operations at the Children's Hospital, one of which was probably an excision. She has had numerous discharging sinuses ever since, seven in all. Several are open at the present time. She is small, immature looking, and has the ways and development of a child of twelve or thirteen years only. The heart, lungs and abdominal organs appear to be normal, but she is debilitated by the pain and suppuration from the right thigh.

The leg is four and a half inches shorter than its fellow, the foot markedly everted, the pelvis tilted. The thigh is striped with scars and sinuses, swollen, red, tender. It is useless for standing and walking, and amputation, which was advised several years ago, was at last accepted.

On Feb. 1 she was etherized and the limb removed at the hip by Dr. Bolles, Dr. Kelly assisting. Under ether. First, a femoral gland was removed and the femoral artery and vein tied, then an oblique incision was made, starting at the trochanter and running downward, forward, around the thigh, and up and forward to the starting point. The bone was then dissected out, from above downwards, and the soft tissues cut across. There was no head, but the end of the bone lay near the pelvis and was held to it by ligamentous tissues. Several extensive sinuses were cut out of the stump, leaving it quite irregular. Edges were then brought together and stitched, with two gauze drains.

She showed considerable shock after the operation, and received a "shock enema" besides intracellular salt solution of one and a half quarts. Recovered from shock and ether well by next day, but vomited for several days, and was fed by rectum. Recovery was uneventful. After this she was up in less than three weeks, and discharged in about four or five weeks on crutches, with the sinuses, where the gauze was, not quite healed. She had gained remarkably in physique and strength.

GASTRIC ULCER.

BY E. M. BUCKINGHAM, M.D., BOSTON.

THIS case of gastric ulcer is shown because of the length of time that it has been possible to continue rectal feeding without injury. There can be no question as to diagnosis. The young woman was admitted to a Swedish hospital four years ago for gastric ulcer, accompanied by the vomiting of blood. Since discharge she has been well until recently, except for some headache, which, of course, may have been digestive. About a month before admission she began having pain, occurring after meals, beginning in the epigastrium and extending into the back. At the same time a cupful of blood was vomited, and smaller quantities have been vomited two or three times since. On admission there was rigidity on pressure over the epigastrium, together with tenderness.

Treatment has consisted in absolute rest in bed and feeding by rectal enemata. These consisted of one egg, eight ounces of peptonized milk and ten minims deodorized tincture of opium. They were repeated every six hours and there was one cleansing enema daily. After a few days the peptonized milk in each enema was reduced to six ounces because of intolerance. There has been no pain from the first, while rigidity and tenderness both disappeared after some fourteen days. Nothing has entered the patient's mouth for three weeks except small pieces of ice, and I want to call attention to her very good condition. There seems no reason why this treatment should not be continued a little longer if desirable.

ANEURISM OF THE AORTIC ARCH.

BY CHARLES F. WITHINGTON, M.D., BOSTON.

THE patient is a man of sixty-five years, whose arteries are older than the rest of his body. The right radial, for example, shows evidence of marked atheromatous change. As he is thin, the right brachial can be distinctly seen throughout a large part of its course; it is tortuous and rigid. The left radial pulse on the other hand is difficult to feel; further investigation fails to detect an ulnar pulse on this side, and the brachial can neither be seen nor felt.

An examination as to the cause of this obliteration of the circulation in the left arm is, so far as physical signs are concerned, unsatisfactory. The heart is slightly enlarged, both to right and left, and there is a systolic apical murmur. Percussion shows a slight increase of dulness upward and to the left, the center of this dull area being about the junction of the second left rib with the sternum. This suggests, of course, either a tumor of the mediastinum or an aneurism of the arch. There is, however, no murmur nor pulsation to be detected over it. Neither is there tracheal tug, paralysis of vocal cord, or inequality of pupils. The diagnosis of aneurism would, therefore, remain inconclusive but for the radiograph, which I now pass about, and which shows a circular shadow about one and one-half inches in diameter protruding to the left of the dark area, corresponding to the aorta, and corresponding to the dull percussion area. This makes it evident that the patient has a small circular aneurism near the junction of the transverse and descending portions of the aortic arch, which, doubtless, obstructs to some extent the origin of the left subclavian artery.

The patient has a greatly enlarged prostate, and passes no urine except by catheter. The question of how far a patient with aneurism may safely be subjected to surgical operation is answered in this case by one of my surgical colleagues whom I have consulted, and who thinks the obstruction can be remedied to a considerable extent, and safely, by operation with the electric knife.

BULLET WOUNDS OF THE HEAD, CHEST AND ABDOMEN.

BY H. W. CUSHING, M.D., BOSTON.

ON Jan. 30, 1904, a man aged fifty-three, the victim of these injuries, was shot with a "32" caliber revolver. He was taken to the Boston City Hospital Relief Station. Examination showed two circular wounds in the right parietal region, about one inch apart. The hair was singed about the lower one, marking it as the wound of entrance. The track of the ball was upward and backward. The skull was apparently uninjured.

There was also a circular wound in the front of the chest, three inches to right of the median line at level of the fourth rib, and a similar wound over the left costal arch one and one-half inches from the xyphoid cartilage.

The patient showed considerable shock. Pulse 110, fair quality. There was little external hemorrhage. The abdomen was not distended, but was generally tympanitic, the hepatic dulness being absent. The tympanitic resonance extended into the flanks. There was marked spasm of the abdominal muscles. No cough, hemoptysis, or hamatemesis was observed.

The patient was seen by Dr. F. S. Watson, who advised immediate operation. Under ether the abdomen was opened by a median incision extending from the ensiform cartilage downward about six inches. There was no noticeable escape of gas. Little blood and no evidence of extravasation of gastric or intestinal contents was seen. A small circular wound was found in the anterior wall of the stomach, from which a small amount of gastric contents escaped as the stomach was raised into the abdominal wound. The stomach was not collapsed. This wound was closed by two "purse-string" sutures. No other wound of the stomach was found, and examination of the transverse colon and small intestine was also negative.

No perforation of the posterior wall of the stomach was found. On the under surface of the liver, two inches from its anterior border, just to the right of the median line, a rent one inch long was found, from which there had been considerable hemorrhage. This was one-half inch deep. It was closed by a single silk suture which controlled the bleeding. The abdomen was washed out with sterile salt solution, and drained in either flank and through the median incision. Salt solution by intravenous infusion was also used early in the operation.

The wound in the chest was not found to penetrate the thorax, and healed without incident. The subsequent history of the case has been uneventful. Rectal feeding was used for the first day after operation, after which nutrition by oval feeding was gradually resumed. The drainage from the median wound was removed on the second day; that in the flanks, on the sixth after the operation.

(Transferred from Relief Station to main hospital, service of Dr. H. W. Cushing, on Feb. 18, 1904.)

On March 1 a bullet, located by radiograph and by manipulation, was removed from the left back. It was situated just under the superficial fascia over the tenth intercostal space and three inches to the left of the median line. It was well encapsulated. This bullet probably passed through the stomach to the point where it was found. No other bullet has been found by careful x-ray examination, and it is difficult to understand how the one which caused the thoracic wound could have reached the point where this one was found without more evidence of its course.

The patient has fully recovered from his injuries as far as is now known.

NEPHROCAPSULECTOMY.

BY J. B. BLAKE, M.D., BOSTON.

J. D., thirty-three years old, teamster, was operated upon Sept. 15, 1902, for chronic nephritis, on the first surgical service, Boston City Hospital. He had previously been treated by Dr. Henry Jackson on the medical side of the hospital for two months; he improved for a while and then began to get worse; the prognosis seemed unfavorable. He came to the surgical side and was admitted early in September, 1902, and operated on by Drs. Munro and Blake. His condition at that time was as follows: Color, pale; thin; moderate edema of extremities; heart and lungs negative; urine, pale, 1013, acid, albumen ¼%; no bile or sugar.

Sediment: Numerous hyaline and fine granular casts, of small diameter, and with renal cells adherent. Considerable blood, free and on casts; a little fat on casts; numerous renal cells, with an occasional fatty cell.

He reported once or twice since the operation. He has felt well and done hard work since leaving the hospital, except for occasional vacations, which are sometimes simply alcoholic sprees. On one of these he noticed that his urine was becoming brownish and his feet were beginning to swell. He then stopped drinking, and these symptoms disappeared.

He has worked out of doors in the Adirondacks this winter. He is still drinking steadily, though not to great excess. He looks and feels well. His urine is pale, 1,012, acid, ¼% albumen. Sediment contains a few hyaline and fine granular casts; a few large, round cells, an occasional epithelial cell.

The scars of the operation show as faint white lines. There is no tendency to hernia, no tenderness and no loss of sensation, motion, or strength in or about them.

The operation was a simultaneous double decapsulation, an operator and his assistant standing together on either side. Two layers of capsule were demonstrated, and both removed down to the pelvis of each kidney. The wounds were closed without drainage. A small bit was taken from each kidney for pathological examination. The report was "chronic glomerulo-nephritis, so-called parenchymatous" (Mallory).

The case may be regarded as greatly improved, though not cured.

TREMOR OF RIGHT ARM. LOSS OF MUSCULAR SENSE AND ATAXIA.

BY P. C. KNAPP, M.D., BOSTON.

Case I. This child, eleven months old, was perfectly well until six weeks ago, when he had a moderately severe attack of measles, from which he recovered two weeks ago. Day before yesterday he woke with this tremor of the right arm, — a clonic, jerky tremor, affecting the flexors of the forearm, the hand and the fingers. The tremor persists during sleep. The arm is a little warmer than the other, and manipulation is apparently disagreeable, for he cries a little if it is handled much. He can move the arm fairly well, but he is more disposed to use the left hand to grasp objects, and an attempt to use the right arm exaggerates the tremor. Except for this tremor he appears perfectly well, and examination has shown no other abnormality. The tremor has diminished in the last twenty-four hours under salicylate of sodium. It does not seem probable that a post-infectious encephalitis could occur in so young a child without more serious cerebral and general symptoms. The local heat and tenderness suggest a local disturbance, but such a tremor from any local inflammation is certainly remarkable.

Case II. This patient is a widow, sixty-eight years of age, who was apparently well until about two weeks ago. Examination, however, shows an enlarged heart, albumen and casts in the urine and evident arteriosclerosis. Two weeks ago she had an attack in which she lost control of her limbs, and was unable to walk. This attack was attended with slight vertigo and paresthesia, but no loss of consciousness. After about an hour she gained control of her limbs. Since then she has had other attacks, and there has been a greater or less persistence of the symptoms between the attacks. The striking symptom at present is a very ataxic gait, and great uncertainty of station. She does not stagger like a drunken person or come down on her heels like a tabid person. In addition, there was yesterday great ataxia of the hands, which to-day is much better. Examination shows no involvement of the cranial nerves, no disturbances of tactile, painful, or thermic sensibility, or of the bony sensibility, a tolerably good sense of movement, but a very profound loss of the sense of position of the limbs. There is no paresis anywhere. The tendon reflexes are exaggerated, but not to an extreme degree, and the plantar reflexes are normal. Her condition varies from day to day, and to-night she shows much less ataxia of the arms and a better sense of the position of her limbs than she did yesterday. There has been, in all probability, some vascular disturbance, either thrombosis or hemorrhage, involving the tracts for the muscular sense, which Starr believes to lie in the lemniscus.

CHOLECYSTECTOMY.

BY F. B. LUND, M.D., BOSTON.

A gall bladder was shown, recently removed at an operation, illustrating a type of cases in which cholecystectomy should be performed. The gall bladder contained a single large stone impacted in the beginning of the cystic duct. The walls of the gall bladder were much thickened, averaging nearly one fourth of an inch thick. The cavity of the gall bladder, when opened, had contained a small amount of pus and no bile. The pressure of the stone in the neck of the gall bladder had caused it to nearly ulcerate through. In case operation had been delayed, the stone would, in all probability have ulcerated into the peritoneal cavity within a short time. In case the gall bladder had not been removed, and the operator had contented himself with removing the stone, a sinus would have persisted for a very long period, and the chronically inflamed organ would probably have contracted adhesions which would have caused pain and would have necessitated a subsequent cholecystectomy. It is in this class of cases and in the gangrenous gall bladders that cholecystectomy is indi-

cated. Such a gall bladder as this, if left behind, can never resume its functions, owing to the great fibrous thickening of its walls, which prevents either expansion or contraction, so that the organ remains as a useless and even harmful appendage.

In this case, owing to the fact that the woman had had a febrile temperature for some time, and the liver was greatly enlarged, it was thought wiser to drain the ducts, so after an excision of the gall bladder, a tube was tied in the stump of the cystic duct. During the operation no bile flowed from the duct, owing to the fact that a long incision had been made and the liver had been drawn vertically upward with such force as to kink the ducts, so that no bile could come through.

After the patient was put to bed, there was a copious discharge of bile from the ducts. This bile contained a considerable amount of mucus, and had a more or less irritating effect on the abdominal wall. The amount and character of the discharge, it was thought, justified the procedure of draining the ducts in this case, rather than ligaturing the cystic duct after removal of the gall bladder.

The patient was a woman of fifty-three years of age, who had had her first attack of pain in the region of the gall bladder two weeks before the operation, and during these two weeks had suffered from continuous fever. For the year preceding this attack she had felt weak and ill. She had not been able to do any work. She had had no attacks of pain in the region of the gall bladder at any time until the attack in which I saw her.

The case is instructive, showing that disease of the gall bladder may exist for a very long time without signalizing itself by local pain, which pain may be, and apparently was in this case, a symptom of threatened perforation. These thickened gall bladders, with stones impacted in the cystic duct, are the very cases which not infrequently result in gangrene of the gall bladder, signalized by a sudden severe attack of pain and fever, with marked constitutional symptoms requiring immediate operation. In this case it is evident that perforation, due to local gangrene rather than to general gangrene of the entire gall bladder, would have resulted.

LAMINECTOMY FOR FRACTURED SPINE.

BY F. B. LUND, M.D., BOSTON.

THIS case was shown by DR. F. J. COTTON: The patient fell from a height Jan. 9, 1904, striking his back or seat, just how is not known. When he was brought to the hospital there was obvious injury of the dorso-lumbar region — a distinct knuckle with ecchymosis. There was complete paralysis of the quadriceps, tibialis anticus and extensors of the foot. The thigh flexors and calf muscles were also paralyzed, in part at least. There was no disturbance of the sphincters and no sensory disturbance. The knuckle was in the upper lumbar region.

Jan. 14, 1904, laminectomy was performed under ether by Dr. Lund. The usual incision showed a projection of loose arch and spinous process which proved to be the second lumbar. This was cut away with the Munro forceps, as was also the arch of the third. It was then evident that the cord had been pressed back, apparently by a crushing back of an intervertebral disc into the canal. The dura was opened; no damage to the cord found; the wound drained and closed.

There was no immediate improvement. The wound closed finally in one month, and about this time power began to return to the thigh flexors, calf muscles, and shortly to the anterior tibial. At the time the patient was shown there was action of practically all the muscles, still weak, with reflexes present and sensation unimpaired. The wound was solid. The patient is now walking and apparently entirely cured.

ARREST OF DEVELOPMENT, PROBABLY RESULTING FROM CONGENITAL SYPHILIS.

BY R. C. LARRABEE, M.D., BOSTON.

A GIRL of twenty-one had been under observation in the out-patient department for eighteen months. The family history gave no evidence of syphilis. The patient is stated to have had measles when five years of age, and following this she had much trouble with the eyes until a year or so ago when she was treated by Dr. Bossidy for ulcers of the cornea. There has been obstruction of the left side of the nose for four years, with much discharge. There have recently been several severe nose bleeds from the same side. Further than this there have been no symptoms other than failure of development. She graduated from the grammer school at the age of sixteen and stood high in her class. She has always been able and bright mentally, and a favorite with her friends.

She looks about ten or twelve years old, is fifty-three inches high and weighs seventy-six pounds. The breasts have only within the past few months begun to develop and there is no axillary or pubic hair or other evidence of sexual development. There are several depressed scars on the forehead involving the bone, said to have resulted from wounds. The bridge of the nose is slightly depressed. There is a prominent scar on the soft palate. There are opacities of both corneæ. In the nose there is an ulcer of the septum and a dry catarrh. The radiograph shows that the epiphyses at the wrists are not yet united to the shafts of the radius and ulnar.

MYXEDEMA.

BY R. C. LARRABEE, M.D., BOSTON.

A WOMAN of thirty from the out-patient department, for seven years had had marked gastric symptoms — erudations of gas, heart-burn and distress after eating. Five years ago she had "nervous prostration," for which the ovaries were removed with the resulting cessation of the catemenia. For a year marked changes have been taking place in her appearance, so that her friends sometimes fail to recognize her. She has gained over thirty pounds and her complexion has become dark and yellowish. She is unusually susceptible to cold. There is some dyspnea on exertion. There has been marked mental depression and she has had slight hallucinations of hearing, especially at night, with sensations as if floating on the water or of suddenly becoming large.

She is a large woman with coarse features, the appearance strongly suggesting myxedema. There were at first marked reddened areas over the malars. The hair and skin were dry. She spoke slowly and without expression. The eyelids were thick and the conjunctivæ were slightly reddened. The lips and tongue were not involved. The supra-clavicular fossæ were full. The urine was negative. The temperature was normal.

Sixteen days ago she was ordered thyroid extract and a mixture containing bismuth, magnesia and soda. Since then there has been a noticeable change in the face. The red areas over the malars have disappeared. She speaks much more naturally. The gastric symptoms have wholly disappeared, as have also the nervous and mental manifestations and the susceptibility to cold. She has lost six and one-half pounds in a week. She says that she feels much better in every way.

Medical Progress.

THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND HAYWARD W. CUSHING, M.D.

(Continued from No. 19, p. 513.)

THE TREATMENT OF GANGRENOUS HERNIÆ BY ENTERECTOMY.

Mr. A. E. Barker has discussed the treatment of this serious lesion in a somewhat extensive article [10] in which the following points are of interest. He states that the question of what to do in a case of gangrenous hernia is one the seriousness of which is well known to all surgeons of experience, and the factors which make such a case grave are also now fairly well recognized. They have been worked out by the anatomist, the bacteriologist and the pathological chemist. A given case of gangrenous femoral hernia presents the following elements of danger: (1) The gut is destroyed by necrosis over a greater or less surface and therefore it cannot be returned into the abdomen; (2) the dead portion is septic in the highest degree; (3) the fluid of the sac, if there be any, is highly septic and may run back into the abdomen and infect it if the constriction has been divided before the sac has been well cleansed; and (4) the condition of things within the abdomen is also fraught with risk. Here the gut above the constriction is loaded with retained fecal matter, which is virulent in proportion to the time it has been pent up in a stagnant condition. The bowel is distended by this fluid, often to an enormous extent and it is paralyzed owing to causes unnecessary to trace for the present. But not only is it distended and paralyzed, but its structure is in many cases much altered. Its mucous membrane is inflamed, or even ulcerated from the point obstructed upwards, often for some feet. The submucosa and muscular coat are edematous and the serous covering is sodden and discolored from extravasation of blood; it may also be flecked with patches of lymph either on its free surface or in its subserous layers. In this condition it is now well known that the bowel, although its continuity is unbroken, can no longer offer much resistance to the passage through its walls of septic organisms, and sooner or later these transude and set up a septic peritonitis. This has been long known of the bowel caught in the sac. But it is now clear that the same infection will take place sooner or later within the abdomen from the unbroken bowel above the constriction if the evacuation of the retained fermenting feces be not provided for. Probably a certain amount of toxic exudation from the obstructed bowel is tolerated by the peritoneum as long as it is sound and is removed by its lymphatics, but the time comes when it is not removed and peritonitis is set up. But beside these dangers the patient has probably been exhausted by vomiting and inadequate feeding for days. The vomited matter has been foul and in many cases it has been inhaled in fluid or vapor form into the lungs with more or less damage to them. Moreover, the patient has been confined to the recumbent position and the bases of the lungs may have been imperfectly expanded, owing to the position and the painful condition in the abdomen and so have become edematous, rendering them particularly vulnerable to infection. Again, the toxins stored up in the bowel above the constriction are absorbed and exert a depressing effect upon the whole economy.

Now it is in these retained contents of the bowel above the constriction and in their local and general toxic effects that the main danger of strangulation with or without mortification lies. Their irritating properties have been known ever since the artificial anus has been made for their evacuation in gangrenous hernia. The rapid production of excoriation or even ulceration of the skin around such an opening bears witness to their acrid nature. Again, the facts so often noted in former times when herniæ were more frequently reduced by taxis alone than now point in the same direction. We have all seen many such cases attacked after reduction by severe diarrhea, with blood-stained stools and other evidence of acute enteritis, often terminating in death. The cause here has been explained to be the rapid rush of the pent-up toxic fluid into the empty and starved intestine below the constriction, setting up there an acute inflammation continuous with the inflamed and sodden tract above. Again, how often have we seen in the days of frequent taxis a patient die from peritonitis starting from the sodden but still unperforated loop returned into the abdomen, or from pneumonia combined with moderate enteritis or peritonitis. Now, if the gut is not viable, experience has shown that the immediate establishment of an intestinal fistula is much the safest procedure, as this permits the immediate escape of the retained toxic products from the proximal bowel. Occasions doubtless arise when an immediate anastomosis can be made, but under ordinary circumstances it is preferable to establish an artificial anus and allow all the contents of the bowel to be rapidly evacuated. Mr. Barker's experience in a fairly large number of cases has led him to the following conclusions: (1) The most imminent danger to the patient with a greatly damaged or actually gangrenous loop of intestine lies in the condition of the bowel for the three or four feet above the constriction. (2) In a case where the patient is in a reasonably good condition, the excision of the dangerous portion of paralyzed and sodden or ulcerated gut *en bloc*, together with all its virulent contents, is relatively the safest course. At one sweep the three or four feet of gut, with pints of toxic material, can be cleanly removed. The great point is to remove at once the contents as well as the diseased bowel and to make our suture junction in relatively sound and clean gut. The procedure Mr. Barker recommends to accomplish this is as follows: When the gangrenous or extensively damaged loop has been drawn well

[10] Lancet, June 6, 1903, p. 1576.

out of the abdominal cavity, as far as the points to be divided, the wound is packed with one end of a long roll of sterilized gauze, none of which can thereby be lost in the abdomen. The first point is to select the spot at which the distal and proximal ends of the damaged loop are to be divided, the first some two or three inches below the constriction and the other at any distance above it, up to six or seven feet, which may be considered to have reached sound bowel. Here the two portions are placed accurately side by side in their long axes and are clamped together firmly with one (first) pair of Doyen's forceps. Next the damaged loop is stretched to its full length, so that each half of the mesentery is evenly applied to the other half. The two halves of this structure are then firmly clamped together with a second Doyen's forceps, placed parallel to and about one inch from the bowel. Another Doyen's forceps is now made to close on the rest of the two leaves of the mesentery if it is too long to be included in one pair. The forceps can start from the point of the second pair, one blade being pushed through the two folds of the mesentery, and should close the latter up to the point at which the two limbs are held together in the first pair used to keep the two limbs of the gut together. This latter pair is now removed and is placed only on the distal portion at the same spot. Another is placed about half an inch more distally, and between the two, the gut, previously packed around with gauze, is divided. The whole of the bowel, still closed by forceps, is now cut away from the mesentery round to the point opposite the forceps on the distal limb. The piece of bowel thus freed at one end and in its whole length is left hanging out of the abdomen, over the edge of the table into a basin and then the forceps closing its end is removed, allowing the contents to escape into the basin and draining the bowel both outside and inside the abdomen. While the latter process is going on, the two halves of the mesentery are stitched together laterally by strong threads passed through them from side to side between the clamps and the cut edges, all being tied on one side and including about two thirds of an inch of mesentery in each ligature. This closes the hole in the mesentery and at the same time the vessels going to the edges cut away from the bowel. All this time the contents of the bowel are running off into the basin on the floor. The anastomosis now remains to be made. But before the junction is begun, the distended gut within the abdomen can be further unloaded by pressure on the abdominal walls and by drawing the coils, if necessary, through the fingers with a kind of "milking" action, until their contents flow off into the basin below.

The junction of the two ends is made as follows: The clamped distal portion and the unclamped proximal, now empty and more or less reduced in size, are laid side by side in such a position that while their attached mesenteric margins correspond at one point, the axes of the two portions cross one another obliquely. When now both are included in one pair of Doyen's forceps at the point at which their mesenteric borders cross, their free margins also correspond by the greater obliquity of the smaller bowel. In other words, when they come to be cut off flush with this forceps, more is cut away from the free margin of the smaller bowel than from the proximal tube which is divided a little obliquely. The two tubes thus held together side by side in one forceps are again clamped nearer the abdomen by another pair as close as possible to the first and then being carefully packed around with sterile gauze are cut with a knife or scissors flush with the distal edge of the first pair of forceps. The freed long coil of intestine and the stump of the distal end held in the forceps applied earlier in the operation now drop off and the gauze packing is changed. Then the forceps at the edges of the approximated tubes is removed, the second pair being left on with the cut edges previously clamped in the first, projecting about a third of an inch beyond it.

Now commencing at the mesenteric border, the adjacent edges of the two tubes are stitched together with a continuous suture, taking up all their coats until the free margins are reached. Here the corner is turned and the opposite edges are similarly stitched until the suture reaches the mesenteric margins again and can be tied with the tail thread at the starting point. Another forceps is then made to clamp both tubes three or four inches nearer the abdomen and the forceps holding them together for the first row of suturing is taken off. This enables the operator to place another line of continuous suture over the first and folding it in. This second row should, of course, take up only the serous, muscular and fascial layer under the latter, avoiding the mucosa. When this has been carried quite round the bowel and has been tied to the tail thread at the starting point on the mesentery, the anastomosis is complete and the forceps higher up is removed. The whole area of operation is now washed with sterile saline solution, especially the anastomosed portion of the gut. The latter is then replaced in good position in the abdomen and this is closed with sutures. Mr. Barker's record, since he began to employ this method of procedure in 1899, is seven enterectomies for gangrenous herniæ, of which five have recovered. The technique of the operation in the original is fully illustrated. This makes the description much more intelligible to the reader.

RESECTION OF THE STOMACH.

J. Boeckel [11] in an article on the partial and complete removal of the stomach reports several interesting statistics regarding gasterectomy. He has compiled 46 cases, which show 28 recoveries and 18 deaths, a mortality of 39%. Nine died from collapse, 7 from peritonitis, 2 from a giving way of the points of suture.

In 21 cases of the recoveries the end result was known. Of these, 11 died from recurrence of the disease after periods varying from five months

[11] De l'ablation de l'estomac, Paris, G. Bailliere et Cie., 1903, p. 192.

to five years. Of the surviving patients, as the case of Weiss, two and one-half years and no carcinoma; Ricard, nearly three years; Rivera, 1 patient, four years; 1 patient almost four years, but with cancer; Brooks-Brigham, five years, now seventy-one years old; and Maydl, eleven years. Of 28 patients on whom the operation was performed, only 4 have lived longer than the fourth year afterwards.

S. P. Federow [12] explains the fact that the esophagus can be united to the duodenum after gastric ablation in the living subject when it cannot be done in the cadaver by supposing that the long-continued weight of the gastric tumor increases the mobility of both the above mentioned points, so that they can be approximated. He reports a case in which the section removed 1½ cm. of the esophagus and the pylorus, yet he was able to make the union by a double suture row. The patient died on the fifth day from gangrene, due to injuries to the blood supply of the esophagus.

A SIMPLE METHOD OF PERFORMING INTESTINAL UNION.

Mr. Alexander MacLennan [13] presents a method of intestinal union by means of bone bobbin. For exact details of this method, the reader is referred to the author's original article. The union is accomplished by means of bone bobbins, the external surfaces of which are grooved, to permit the sinking in of a constricting ligature. The bobbin is inserted into the proximal end of the divided gut and is held in place by a ligature tied around outside and superimposed to the groove; over this ligature is placed a rubber ring. The proximal end of the intestine, so armed, is then inserted into the distal end so far that the distal portion covers the groove. It is then ligated into this groove over the proximal end in a manner similar to that in which the proximal end is fixed to the bobbin. This ligature must be tight. Union is completed by stitching the cut borders of the mesentery. Finally, all distal to the rubber ring comes away. It is claimed that the operation is an exceptionally easy one to perform and takes much less time to carry out than to describe. The bobbins are made of decalcified bone in a series of four sizes and are slightly conical. The length of each is slightly more than its diameter.

INTESTINAL LOCALIZATION.

Dr. G. H. Monks [14] has studied on the cadaver the characteristics of the intestine at various distances from the duodenum and gives his results. He utilized for differentiation the root of the mesentery, which springs from the posterior wall of the abdomen along a straight line six inches in length, starting above on the left side of the spinal column where the duodenum ends and about on a level with the body of the second lumbar vertebra, continued obliquely downward and to the right, to end in a somewhat indefinite way at a point opposite the sacro-iliac synchondrosis. The circulation in this mesentery is one of the valuable points in the localization of the intestine. The arrangement of the main branches of the superior mesenteric artery is in primary and secondary loops; the former predominating and being more marked in the upper end and the circulation becoming more complicated as we descend. There seems to be no fixed rule as to the length of the intestine. Age and sex have little to do with it. Where the intestine is very long, he has sometimes found the mesentery of unusual length and the little straight vessels running from the mesenteric loops to the intestines much longer than the average. Where it is short he has also observed in a few cases that the mesentery and vasa recta were also short. The diameter of the gut is the greatest above and gradually diminishes in size as we go down the tube. In the lower third or so the size remains the same throughout. The thickness is greatest in the upper part on account of the large and numerous valvulæ conniventes and the greater development of the muscle layers. It gradually gets thinner until within two or three feet of the cecum, where it thickens again. This thickening is presumably due to an increase in the muscular elements. The upper part is normally bright pink or red, showing numerous vessels. As we go down the tube the color changes to a gray or pinkish or yellowish gray and the vascularity is less marked. The valvulæ conniventes diminish in number as we go down and about fourteen or fifteen feet from the end of the duodenum they seem to disappear and below this can seldom be seen or felt. The various parts of the intestine show foods in various stages of intestinal digestion. The consistency increases somewhat towards the lower end. It is hardly necessary to suggest that when one end of the loop, which is high up in the bowels, is gently pulled on and meets with resistance, the loop is probably close to the duodenum, and likewise when one low down in the bowel meets with resistance, the loop is probably a short distance from the ileocecal valve. The mesentery varies in thickness in the different parts. The thinnest part of the mesentery is that portion which is adjacent to the upper part of the intestine and it becomes thicker as we go down the tube, largely owing to the deposition of fat. Its translucency varies immensely. Tabs of fat near the mesenteric border of the intestine are another guide, increasing toward the lower region. The direction of the stretched mesentery may also be a guide. Knowing the direction of the line of resistance, we get an approximate idea as to the part of the mesenteric root which resists; we can generally tell whether it is to the left or right. The more it inclines to the left from below upward, the nearer is the loop to the duodenum and vice versa. These conclusions which he reaches are only approximate ones. He gives a fair average, showing that he was within three feet of the true localization in about 75% of his estimations and that the average was not out more than two feet.

(To be continued.)

[12] Russisch Arch. f. Chir., Bd. xix.
[13] Lancet, Oct. 24, 1903, p. 1156.
[14] Transactions American Surgical Association, 1903, vol. xxi, p. 405.

Recent Literature.

A Laboratory Guide in Urinalysis and Toxicology. By R. A. WITTHAUS, A.M., M.D., of Cornell University. Fifth edition. New York: William Wood & Co. 1903.

A fifth edition of Dr. Witthaus' Laboratory Guide in Urinalysis and Toxicology has been published. It is arranged primarily for the use of students, and contains a large number of tests for the determination of the presence of abnormal constituents and the methods of estimating the presence of poisons and the reactions of the various metals. Blank pages are left throughout the book for annotations, and a brief discussion of chemical terms and methods is introduced for the benefit of the elementary student. The book is made of such a shape and size that it will easily fit into a pocket.

The Medical Epitome Series. Physics and Organic Chemistry. A Manual for Students and Practitioners. Organic and Physiologic Chemistry. A Manual for Students and Practitioners. By ALEXIUS MCGLANNAN, M.D., of Baltimore, Md. Series edited by V. C. PEDERSEN, A.M., M.D., of New York. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

These two small books are of the type with which we have long been familiar. An attempt has been made to reduce to the very smallest possible space the science in the one case of physics and inorganic chemistry, and in the other of organic and physiologic chemistry. Facts are stated without wide discussion, and the volumes are intended particularly for the use of students. To this end questions are appended at the end of the various chapters which are designed to cover the preceding text. As brief books of reference such epitomes have value.

Laboratory Manual of Physiological and Pathological Chemistry. For Students in Medicine. By DR. F. SALKOWSKI, Professor in the University and Director of the Chemical Laboratory of the Pathological Institute, Berlin. Authorized translation from the second revised and enlarged German edition by W. R. ORNDORFF, A.B., Ph.D., of Cornell University. Illustrated. New York: John Wiley & Sons. London: Chapman & Hall. Limited. 1904.

This volume of 263 pages aims to place before the student a practical knowledge of physiological and pathological chemistry, being a translation into English from the second revised German edition. The text concerns itself with a succinct discussion of methods of examination of the various organs and secretions of the body, and should certainly serve its purpose of interesting a greater number in the increasingly important topics of which it treats. Dr. Salkowski's name and position insures the value of the text, and the translation has been well and carefully done by W. R. Orndorff, Ph.D., of Cornell.

The Medical Epitome Series. Microscopy and Bacteriology. By P. E. ARCHINARD, A.M., M.D., Demonstrator of Microscopy and Bacteriology, Tulane University of Louisiana, Medical Department. Series edited by V. C. PEDERSEN, A.M., M.D. Philadelphia and New York: Lea Brothers & Co. 1903.

The author states in his preface that this book is an epitome of matter contained in standard textbooks, and that not only the student but the practitioner may also use such a volume to post himself on the main facts of bacteriology and microscopy. The title is rather misleading as the entire volume except a short chapter on the malarial parasite and ameba coli is devoted to bacteriology.

The microscope and its use are illustrated and described briefly, too briefly perhaps to be clear to medical students untrained in physics. The fundamental principles of bacteriology are discussed in fourteen pages which contain no reference to the recent work of Chester, Hill and others on the morphology of various bacteria. Methods for the preparation of culture media are given. The common methods of staining are well described and the illustrations give one a good idea of the apparatus used. Illustrated chapters on technique are followed by descriptions of pathogenic bacteria.

Brief methods for the examination of water, air and soil as practiced in Europe are given. The better methods devised and used by American bacteriologists are not given.

To each chapter is appended a list of questions which serve to emphasize the salient points of the subjects treated.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M.D., and FREDERICK PETERSON, M.D. 8vo. pp. 922. With 338 illustrations. Fourth Edition, thoroughly revised. Philadelphia: W. B. Saunders & Co. 1903.

The portion of this work devoted to nervous diseases has been revised and various additions have been made, without materially changing the character of the work. The chief feature of this new edition is the addition to the section on nervous diseases of an elaborate article by Dr. Adolf Meyer, a review of recent problems of psychiatry. This is an excellent critical digest, nearly forty pages in length, of the recent teachings of Kraepelin, Wernicke and Ziehen. Excellent as this digest is it is decidedly out of place in the present work, intercolated as it is between the very commonplace and decidedly antiquated chapters of the section on mental diseases, which ignore every feature of the modern doctrines contained in the digest. It is certainly a question whether this elaborate discussion of these modern doctrines, which are still awaiting acceptance, is not too abstruse for the average student or practitioner for whom this work is intended, but, setting this question aside, Dr. Meyer's chapter in its present surroundings is one of the most striking examples of putting new cloth into an old garment that we have met in a long time.

THE BOSTON

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THE ABSENCE OF EOSINOPHILE CELLS IN PUS.

IN a very interesting thesis published at Geneva in 1902, entitled, 'Du Cytodiagnostic des Pus Chirurgicaux," Tissot reports the results of the cytologic examination of 42 cases of septic suppuration and 37 instances of tuberculous suppuration. It will at once be remarked in reading these experiments that eosinophile cells were absent in every case with one exception, that of a suppurating periostitis, and even here their proportion was very small, being only 0.3%. Tissot is, consequently, in opposition to Williams,[1] who was able to find eosinophile cells in every sample of pus examined by him, but this is explained from the fact that he used pus from acne pustules.

It is quite true that besides the pus of gonorrhea, eosinophiles have been found in the sputum in nearly all vesicular or pustular cutaneous affections, particularly in Deering's disease and blisters. The vesicular and pustular cutaneous diseases may in themselves form the object of a very extensive special cytologic study, but up to date little has been done. But if one studies cases of suppuration in which eosinophiles are present, it will be remarked that the lesion is seated on surfaces covered by epithelium, such as the integuments, the urethral mucosa, or that of the bronchial tubes.

According to Ehrlich and Einhorn, eosinophiles are formed in the bone marrow, but this opinion has been contested by Muller, who points out that these cells are, both by their vital conditions and morphology, different from bone marrow cells. For Vogel the spleen is another organ for the formation of eosinophiles, but this theory has been contested by Deny. Stutz tried to demonstrate that their origin is the same as other white cells of the blood, and that they originated in the intestinal mucosa. Schulze believes that they form in the blood, but the fact that there exist local eosinophilias without any eosinophilia of the blood is not quite in accord with this theory.

Comparative studies, especially by Fink, Schmidt and Leyden, have demonstrated that no relationship exists between the quantity of eosinophiles in the blood and those in the sputum, for example. Mandybur even thought that these cells formed in the respiratory apparatus, perhaps on account of special changes arising in the red blood cells, while Hagar and Klein explain the presence of eosinophiles in pleural exudates by resorption of hemorrhagic exudates, and he also noted a concomitant eosinophilia of the blood.

Fuchs endeavored to show that the eosinophiles were derived from altered red blood cells, while for Marchalkoff they are the result of a metaphasia of non-granular lymphocytes. Biondi, Heidenheim, Bergonzini and Rosin have demonstrated that eosinophiles are present in microscopic sections of tissues in the stage of inflammation just preceding suppuration. Pappenheim thought that their origin might simply be from the connective tissue, and that a local eosinophilia is primary and not secondary to that of the blood, as is upheld by Ehrlich.

Tissot believes that the explanation of the complete absence of eosinophiles in the pus cases that he studied may be found in the theory emitted by Ehrlich, that the bacterial toxins act by positive chemotaxis on the neutrophile polynuclears, and on the contrary, by negative chemotaxis on the eosinophiles, since both are endowed with the property of diapedesis. Pappenheim believes he has found a proof in favor of this theory from the fact that eosinophiles are found in the liquid of blisters as long as the serum remains clear, but as soon as it becomes purulent and contains many neutrophile polynuclears, the eosinophiles disappear. This is quite contrary to the theory of Posner and Lewin who, like Muller, believe that eosinophiles are derived from neutrophile polynuclears.

As may be seen, the question of eosinophilia is far from being elucidated, both as to the origin and mode of formation of these cells, as well as their significance. We would simply point out

[1] Boston Medical and Surgical Journal, Sept. 19, 1901.

that in no instance were they found when the pus was derived from deep structures, and that their presence in products of suppuration coming from cutaneous or mucous surfaces would lead one to believe that they are derived, if not from the epithelial cells themselves, at least from the connective tissue cells directly underneath the epithelium.

It is also not impossible that eosinophiles may be present during the early stages of suppuration, but the frailness of these elements is such that they are the first to undergo a degenerative process leading to liquefaction of the eosinophile granulations and to the destruction of the cell body, after destruction of the nuclear chromatin has occurred.

REPORT OF A CANCER RESEARCH FUND.

We are in receipt of the first number of the scientific report on the investigations of the cancer research fund under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. The pamphlet concerns itself with the zoölogical distribution, the limitations in the transmissibility, and the comparative histological and cytological characters of malignant new growths.

In approaching the subject from this standpoint the attempt has been made to investigate cancer in accordance with the extent to which it pervades the animal kingdom, and the opinion is expressed that a solution of the problem in man, far from being the rational starting point, is really the logical destination toward which all research must converge. In following out this object the report offers an interesting discussion of the distribution of cancer among the various lower animals. As a part result of this necessarily somewhat imperfect series of observations it is concluded that clearly the conditions of human life have not called cancer into being, and the suspicion is even suggested that these conditions have not led to a greater incidence of the disease. It is maintained that the essential factors in the causation of the disease must be sought in the possibilities residing in the cells themselves rather than in the conditions of life under which malignant new growths are found. Such external agencies must at least be relegated to a secondary place in determining the existence of the disease. A review of the various facts, up to this time demonstrated regarding the transmission of cancer through transplantation, points to similar conclusions, again carrying us away from the various external agencies which have at times been supposed to be productive of the affection. Finally a section, amply illustrated, follows on the comparative study of the cells of malignant new growths. This matter, however, demands further observation in other tumors than those studied before a definite generalization may be made.

It is noticeable, in looking over this first product of the researches of this committee, that no attention is paid to the parasitic origin of the disease. We suspect that this is but a forerunner of the attitude toward the problem which we may look for in the immediate future. With all the painstaking research which has within the last few years been expended upon the supposed parasite of cancer, it is safe to venture a probable prediction that, attractive as that theory seemed to be, it will not serve to explain the existence of the disease. The account before us reverts to a position which has been rather lost sight of in the eagerness to discover a specific cause.

AMERICAN SOCIAL SCIENCE ASSOCIATION.

The tendency toward narrowness and overmuch specialization is met in a measure by such societies as the American Social Science Association which held its general meeting in Boston last week. The object of this association is to discuss matters of public concern in the field of social economy, finance, education, jurisprudence and medicine. The broad scope of its work evidently entitles the association to a prominent place, and the character of the papers read at this last meeting justifies its wide recognition as a channel of information from experts in various lines to the public at large. It is of particular interest to the medical profession from the fact that through its agency matters of conspicuous concern to the laity find expression. At this meeting, for example, an excellent presentation of the arguments in favor of animal experimentation was given by Dr. H. C. Ernst. It is evidently desirable that this subject should be discussed elsewhere than before legislative committees, and that those interested in the progress of science in its broadest aspects should have an opportunity of hearing a plain statement of the case from one authorized to speak upon it. Dr. W. T. Porter also read a paper on the "Use of Physical Measurements of Public School Children," a matter with which his name has long been identified, and which is of wide pedagogical as well as medical interest. The matter of tuberculosis was taken up by Dr. E.

O. Otis, president of the Boston Society for the Relief and Control of Tuberculosis. We have frequently commented on the fact that the hope of extermination of this disease lies in the far-reaching education of the public regarding its dangers and its methods of propagation. The campaign is already well started, but the matter can hardly be too widely advertised if interest in the extermination of the disease is to be maintanied. Water supplies a'so received their share of attention. In calling a tention to this meeting it is our purpose merely to lay stress upon the fact that, particularly in this day of extreme specialization, it is desirable that certain associations of men interested in widely diversified branches of human activity should hold meetings for the purpose of bringing out the interrelationships of their work. This end the American Social Science Association appears to accomplish.

MEETING OF THE AMERICAN GYNECOLOGICAL SOCIETY.

The twenty-ninth annual meeting of the American Gynecological Society will be held in Boston Tuesday, Wednesday and Thursday of next week. The medical public at large is cordially invited to these meetings, an invitation which will no doubt be accepted by many whose interests lie outside of the general topics under discussion. There are few special fields in medicine which have so wide and practical a bearing upon the work of the more general practitioner, and the opportunity offered is an unusual one for men engaged in various departments of medicine in this vicinity to learn what has been accomplished by specialists during the last year. We have before commented on the increasing desirability of Boston as a place of meeting for national societies, particularly at this season of the year when it offers those out-door attractions to visitors which are rightly coming to be an essential part of these yearly gatherings. The meetings of the society, under the presidency of Dr. Edward Reynolds, will be held at the Medical Library.

MEDICAL NOTES.

Death of Prof. E. J. Marey. — News has just been received by cable that Prof. E. J. Marey died on May 16. Physiology has thus lost one of its ablest exponents and a leader in the application of methods of physical research to the study of biological phenomena.

Mr Rockefeller's Gift to the Johns Hopkins Hospital. — In the final presentation of his gift of $500,000 to the Johns Hopkins Hospital Mr. Rockefeller added $1,600 which represented the interest on the gift from April 4, the day on which it had been announced, to the time of its final presentation.

Bequest for the Study of the History of Medicine. — It is announced that Herr Puschmann has bequeathed in his will 500,000 marks to the University of Leipzig for the purpose of furthering the study of the history of medicine. Herr Puschmann was formerly connected with the University as a teacher of this general subject.

Samuel Smiles, M.D. — Dr. Samuel Smiles died recently in his ninety-second year. He retired from the practice of medicine in 1837, and became the editor of a Leeds newspaper. He was the author of a life of George Stephenson and other biographies and books. His name, however, is associated with "Self Help" and the "Self Help" Series. "Self Help" was published in 1859.

Retirement of Dr. William T. Bull. — Dr. William T. Bull recently delivered his last lecture in the medical department of Columbia University as professor of surgery. At the conclusion of his lecture he made certain appropriate remarks, commenting on the excellence of medical students as a class and expressing his gratification that his successor was a graduate of the same school of medicine. When he had finished his remarks he was presented with a silver loving cup by the third and fourth year classes.

Smallpox in Chicago. — According to the *Bulletin* of the Chicago Health Department four cases of smallpox were sent to the isolation hospital during the week ending May 7. None of these had ever been vaccinated. Two were colored persons, one of whom came from Memphis, Tenn., a few days ago, and the other from Omaha, Neb., while in the eruptive stage of the disease. The other two contracted the disease from persons who in turn had contracted it from Ohnett, the "Dowieite," making twelve cases of smallpox known to have been caused by this anti-vaccinationist.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 18, 1904, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: Diphtheria 48, scarlatina 11, typhoid fever 11, measles 172, smallpox 0.

Appointment of Dr. Myles Standish. — Dr. Myles Standish has been appointed assistant professor of ophthalmology in Harvard University.

A Centenarian. — Mrs. Delight B. Upson has recently died in Burlington, Conn., at the reputed age of nearly one hundred and three years. She is said never to have called on the services of a physician until after her hundredth year, and so secluded was her manner of life that she saw a train of cars for the first time six years ago.

Tuberculosis Before the Monday Evening Club. — James Alexander Miller, M.D., who has charge of the Tuberculosis Clinic of Bellevue Hospital, New York City, spoke of the dispensary management of cases of tuberculosis, and Miss Lilian Brandt, statistician of the New York Committee on the Prevention of Tuberculosis, spoke of the social aspects of tuberculosis, before the Boston Monday Evening Club, May 16.

NEW YORK.

The Sanity of an Eddyite. — A woman Eddyite was recently taken to the psychopathic ward of Bellevue Hospital to be examined as to her sanity because, in carrying out her beliefs to the logical conclusions which other Christian Scientists balk at except in the single matter of disease, she refused to take food any longer. She is certainly to be admired for her consistency in this respect.

Change in Existing Labor Laws. — The Governor has signed an act passed by the legislature effecting an important amendment of the existing labor laws. It transfers from the factory Commissioner to the Commissioner of Labor jurisdiction over tenement-house factories. It provides that no license for such factories shall be issued while there exists in the tenement concerned any communicable disease or any violation of the local ordinances in regard to sanitary conditions. The commissioner may require the abatement of any nuisance, and if any filthy or unsanitary condition is habitually maintained, he is authorized to "cause to be affixed to the entrance door of such apartment a placard calling attention to such facts, and prohibiting the manufacture, alteration, repair, or finishing of said articles therein." The commissioner must inspect tenement-house factories at least twice a year, and local health authorities are required to co-operate with him.

Legal Value of a Boy and a Girl. — In New Jersey the legal value of a boy and a girl has been fixed at $6,000 and $3,000 respectively. On May 13, in the Circuit Court sitting at Newark, Judge Adams refused to alter a verdict for $6,000 returned by a jury in favor of Evan N. Eastwood, whose son lost his life in a railroad grade crossing accident at Clifton Avenue, Newark, Feb. 19, 1903, when a number of children on their way to school in a trolley car were killed. Judge Adams also reduced to $3,000 the verdict of $5,000 which had been awarded Henry Werpapp, whose daughter was killed in the same accident, basing his decision upon the hypothesis that the value of a girl's life from a wage-earning standpoint is about half that of a boy's.

Charitable Bequests. — By the will of the late Solomon Loeb, of the banking firm of Kuhn, Loeb & Company, more than $100,000 is left in charitable bequests. Among the institutions favored are the following: Mount Sinai Hospital, $10,000; Montefiore Home and Hospital for Chronic Invalids, $10,000; New York Sanitarium for Hebrew Children, $5,000; General Memorial Hospital, New York, $2,500; Jewish Hospital at Cincinnati, Ohio, $5,000; Jewish Hospital at Worms, Grand Duchy of Hesse, $5,000, to be known as the Leopold and Rosina Convalescent Fund; University of New York, $10,000 for the support of a chemical library, provided his son, Prof. Morris Loeb, shall be a professor of the university at the time of the death of the testator.

Dr. W. P. Spratling, Superintendent of Bellevue Hospital. — At a meeting of the board of trustees of Bellevue and Allied Hospitals held May 13, Dr. William P. Spratling was appointed Superintendent of Bellevue Hospital, in the place of Dr. William Mabon, who has resigned. For the past nine years Dr. Spratling has been superintendent of the Craig Colony for Epileptics, at Sonyea, N. Y., and it was his admirable work in the organization and administration of that institution which led to his selection on the part of Dr. Brannan, president of the Bellevue board. He is a native of Alabama and was graduated from the College of Physicians and Surgeons, Baltimore, in 1886. From 1891 to 1895 he practiced in New York City, and in the latter year took the civil service competitive examination for the superintendency of the Craig Colony, his name standing at the head of the list.

Improved Accommodations for House Officers at Bellevue. — It has been announced that in order to increase and improve the accommodations for the house staff of Bellevue Hospital, the top floor of the building in the hospital grounds, which was formerly occupied by the Bellevue Hospital Medical College, is being renovated and partitioned off into dormitories for the internes.

A Case of Smallpox. — Just as he was about to be transferred on April 25, from Bellevue Hospital to the Metropolitan Hospital on Blackwell's Island, it was discovered that a negro patient, twenty years old, was suffering from smallpox. The case had developed rapidly while he was in Bellevue, and the ward in which he had been treated was at once quarantined. The negro was admitted on April 22, and at that time smallpox was not suspected.

Carpentier Professorship of Pediatrics. — At a meeting of the board of trustees of Columbia University held May 2 it was announced that a gift of $60,000 had been received from Horace W. Carpentier, a graduate of the Academic Department in the year 1848, for the support of a chair in the Medical School, in memory of his brother, the late Dr. Reuben S. Carpentier. The trustees voted to apply the income of this fund to the chair of diseases of children, and in recognition of the gift they named the chair, which is now occupied by Dr. L. Emmett Holt, the Carpentier Professorship of Pediatrics.

"Crowner's Quest." — The antiquated "crowner's quest," it seems, is not yet to be banished from New York. The bill passed by the legislature abolishing the coroners is one of those in which, as involving the interests of the city, the mayor has the right to veto, and Mayor McClellan has seen fit to return the bill to Albany with his disapproval. Before doing so he gave a public hearing on the matter, and for more than four hours listened to arguments for and against the measure. Dr. H. R. Purdy, who has been one of the most active workers in behalf of the proposed change, has made the following comment on the present situation: "The friends of reform are not discouraged, for the mayor's veto means only temporary delay — not final defeat. The habitual inertia of our people — if the mayor properly represents them — toward the acceptance of new and improved methods has apparently not yet been overcome, but they will in time be made to see that the coroner system is not only useless, but is a malignant growth in the body politic, and that the only cure is in a radical operation."

Obituaries.

ROBERTS BARTHOLOW, M.D.

Roberts Bartholow, M.D., of Philadelphia died in that city May 10, at the age of seventy-three. He was graduated from the University of Maryland in its medical department in 1852, and later received the degree of LL.D. from St. Mary's College of the same state. After serving for eight years in the medical staff of the army he resigned in 1864, and accepted a professorship in the Medical College of Ohio, giving instruction in the theory and practice of medicine and becoming dean of the faculty. In 1879 he allied himself with the Jefferson Medical College of Philadelphia, and the remainder of his life was passed in that city. At the time of his death he was emeritus professor of materia medica, general therapeutics and hygiene at this institution.

His literary work was concerned largely with treatises on materia medica and therapeutics, and it was in this general branch of medicine that he attained his greatest reputation. He was a member of many learned societies, and although he no longer actively taught, he was at the time of his death engaged in professional work. In 1880 he delivered the Cartwright Lectures in New York on the subject of "Antagonism between Medicines and between Remedies and Diseases."

SIR HENRY THOMPSON.

Sir Henry Thompson died in London, April 18, in his eighty-fourth year. His origin was somewhat obscure. He studied medicine in London and graduated from University College at the mature age of thirty-two years. He was early interested in genito-urinary diseases and especially in lithotrity, and studied under Civiale in Paris. In this department of surgery he was for many years in the front rank of his profession, and enjoyed a large income. He was always a bold operator, and his boldness was sometimes carried to undesirable extremes. As a general surgeon he was not highly regarded. He had a strong but not a generous nature. This was evidenced in his reception of Dr. Bigelow's operation of litholapaxy when presented by Bigelow at the International Medical Congress in London.

Sir Henry interested himself in a variety of subjects not germane to surgery, — in painting, in pictures and china, in gastronomy, in cremation, in praying for the sick, in astronomy. He wrote several books, one on ood and some novels.

Miscellany.

UNDESIRABLE MARRIAGES.

IN connection with the subject of undesirable marriages and how they may be prevented, the *Lancet* in a recent issue discusses the difficulty of passing a law which will control the marriage of imbeciles, habitual criminals and persons unfit to propagate their kind in general. The following suggestions are made, which seem to be both ingenious and practical:

We have somewhere seen the excellent suggestion that every girl, through her parents or natural guardians, should insist upon the acceptance of her intended husband by a responsible insurance company before consenting to marry him; and this is a requirement in support of which public opinion might without any great difficulty be enlisted. The benefits of insurance are now rendered available for persons and classes of very moderate means; and we doubt whether the attraction between the sexes, or rather between particular individuals, is in any large number of cases sufficiently overmastering to cause the complete neglect of prudential considerations if these were but rendered prominent as matters of education, and strengthened by the common consent and practice of those to whom they would chiefly apply. Medical practitioners might do much to promote a proper estimation of the facts among their patients. They would seldom be justified in interfering with unasked advice as to any particular alliance, but they should earn the gratitude of the public by keeping the facts of physiology and pathology in relation to marriage under the notice of the numerous parents who might be prevented by such knowledge from consigning their children to lives of misery.

AUTOMOBILES AND MEDICINE.

THE use and abuse of the bicycle from a hygienic point of view came in for much discussion at one time, and the turn of the automobile seems to have arrived. Its therapeutic and pathogenic powers were the subject of a thesis recently presented by Dr. Blanchet to the University of Lyons. The thesis was founded partly on personal experiences and partly on the opinions collected from a number of medical men whose patients included numerous automobilists. The author considers the matter chiefly from the point of view of the treatment of phthisis. He himself had influenza in April, 1898. Previously he had had good health, but the attack was followed by pleurisy with effusion. The latter disappeared with some rapidity, but a dry pleurisy continued for a long time. Eighteen months later he had symptoms of slight bronchitis, and tubercle bacilli were found in the sputa. He then began to lose flesh and appetite, and had slight fever; fifteen months later he had to give up work. Some six or seven months of rest and open air treatment restored his health sufficiently for him to recommence work, but he was still below his usual weight, and had little appetite. Upon resuming work he bought an open automobile, and went out twice a day, covering on each occasion 60 or 70 km. After a year of this experiment he recorded the results, which were that he had entirely got rid of his cough, entirely regained his appetite, and had increased 6 kilos in weight, in spite of being actively engaged in professional work all the time. His chest capacity had also increased between 500 and 900 ccm. Summing up his own experiences and those cited from a number of medical friends, the author concludes that automobile exercise will gradually abolish or greatly diminish the cough of tuberculous patients and of those suffering from chronic bronchitis, and at the same time produce healthy sleep and appetite. On the other hand, the exercise will increase pyrexia if the latter already exists, and may cause it in those who are excitable. In view of the long stay in the open air which automobile exercise implies and the increased atmospheric pressure entailed by the rapid motion, it is quite natural that benefit should be experienced in cases of early pulmonary tuberculosis. It is essential, however, that the body should be duly protected from cold. It is also most important to avoid dust, and for this reason unfrequented roads should be selected. There is still more reason to believe that the exercise will prove of value in all conditions which are accompanied or brought about by ineffective or slow tissue metabolism. Examples of distinct benefit in neurasthenia have come under our own notice and, on the other hand, we have had reason to conclude that a catarrhal condition of the upper air passages may be kept up indefinitely by motoring under ordinary conditions and on frequented roads. — *British Medical Journal.*

Correspondence.

LEPROSY IN MASSACHUSETTS.

BOSTON, May 13, 1904.

MR. EDITOR: May I be permitted to offer some comments upon your interesting editorial on this subject in the JOURNAL of May 12?

Leprosy is a contagious disease, as tuberculosis and syphilis are contagious. It is preeminently a bacillus disease, for this organism is found in nearly all the tissues and fluids of lepers far more universally and abundantly than are the bacilli in those of a tuberculous patient. The bacillus of syphilis has not yet been seen, as we do not yet know the proper reagents to make it visible. Not long ago the same was true of tuberculosis and leprosy. Undoubtedly the human tissues are less favorable to the fruitful reception of the infective germs of leprosy than they are to those of these other two affections, and no other animal receives them at all; but then we must not minimize the danger which does exist. Lack of knowledge of it has led to dire results, both in past centuries and recent years. The mistaken conclusions of Boeck and Danielsen and of the Virchow and English commissions had, without doubt, much to do with the revival of the disease in modern times.

It is often maintained that leprosy is not contagious, because one has known of a few cases in a community which have not given rise to other cases, so far as is known. Can we not say the same of innumerable cases of tuberculosis and syphilis we have known? It is the

positive not the negative evidence to which we must give heed, nor should we forget that the period of incubation of leprosy is uncertain and very prolonged, so that it is not easy to determine the possible results of the occurrence of any case of the disease in a community. Certain so-called sporadic cases of natives of the United States who have never been out of the country can only be explained by chance and unrecognized association with resident lepers. I have known several lepers to have remained long unsuspected in this vicinity, who may have communicated the disease in instances as yet undeveloped or undiscovered. But of well-known individual cases of contagion, there are examples more than enough: Father Damien, other clergymen, nuns, physicians, nurses and ward tenders connected with lazarettos. But the recent spread of the disease in countries previously unaffected bears wholesale evidence of its contagious character, as in British Guiana, Trinidad, New South Wales, certain Spanish and Russian maritime provinces, etc. The rapid increase of the disease in some of these instances, as earlier in Hawaii, shows that it must spread by infection from person to person. The results of isolation in its control is another illustration of its infective character. In 1870 the number of lepers in Norway was 2,607. In 1885 government passed restrictive laws and established lazarettos. In 1893 the number had been reduced to 800.

Differences in the customs of living account, no doubt, for the greater prevalence and more rapid spread of the disease in some countries; such change in habits may explain the dying-out of the disease among the Norwegian immigrants here in New Scandinavia. They no longer sleep in the same bed with lepers or wear the clothes of the deceased, as formerly at home.

We have believed until lately that cases of ulcerating tubercular leprosy were alone dangerous, and that infection took place by surface contact with such lesions. Now we know that the nasal secretions of *all* lepers, and from the earliest stages, contain the bacilli, to be disseminated by exhaling and sneezing. This is probably the most common channel of inception of the disease.

May I add that within my knowledge there have been several instances of the disease in Massachusetts among native Americans, that there have been more than "half a dozen" lepers in this state in the past twenty years, that there are at least two here at present, and that Dr. Smith, superintendent of the lazaretto at Tracadie, reported in 1894 that "he found leprosy cropping out in unexpected places, and that he fears for years to come that new cases will be met with, and that by only permanent detention and isolation can it be kept checked or stamped out."

The fear of leprosy, although unreasonable in degree with us at the present time, may be regarded as a holy horror, and it were better for mankind were it divided up and bestowed in impartial measure upon tuberculosis and syphilis as well.

I am still of the opinion, Mr. Editor, presented to the Congress of Physicians and Surgeons in 1894: "That graded hospitals should be established by the national government in insular localities, where possible, within which both suspected and confirmed cases should be isolated, and to which all access should be prevented excepting under proper restrictions."

Very truly yours,

James C. White, M.D.

ANNUAL MEETINGS OF MASSACHUSETTS MEDICAL SOCIETY AND AMERICAN MEDICAL ASSOCIATION IN CONFLICT.

Fall River, Mass., May 12, 1904.

Mr. Editor: At a meeting of the Bristol South District Medical Society held this day it was unanimously voted: "That the councillors of the Bristol South District Medical Society be directed to endeavor urgently to secure a change in the time of meeting of the Massachusetts Medical Society so that it will not conflict with that of the American Medical Association."

Very truly yours,

A. J. Abbe, M.D.
Secretary.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, MAY 7, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Measles.
New York	3,908,644	1,716	502	25.99	23.72	2.32	.29	2.27
Chicago	2,021,086	539	110	21.15	22.26	1.48	—	—
Philadelphia	1,407,968	572	119	30.62	17.80	1.55	.35	.52
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	207	54	27.53	18.36	1.93	—	—
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	490,645	—	—	—	—	—	—	—
Pittsburg	362,403	135	—	25.18	13.33	.74	—	2.96
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,980	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	68	21	14.71	14.71	1.47	—	—
Boston	617,950	239	66	20.07	16.74	1.25	.42	1.25
Worcester	136,925	31	14	19.35	13.30	—	.32	.32
Fall River	119,349	43	15	20.92	16.27	.23	—	—
Lowell	104,402	35	11	14.28	17.14	—	—	.28
Cambridge	100,998	25	7	16.00	16.00	—	8.00	—
Lynn	73,875	15	1	13.33	—	—	—	—
Lawrence	72,348	25	7	28.00	12.00	—	—	—
Springfield	72,020	19	3	15.79	5.26	—	—	—
Somerville	70,413	28	8	17.85	7.14	7.14	—	—
New Bedford	68,863	22	5	13.63	4.54	—	4.54	—
Holyoke	50,538	15	6	13.33	40.00	—	—	—
Brockton	46,601	14	5	21.42	—	—	—	14.28
Newton	39,310	8	3	—	12.50	—	—	—
Haverhill	39,061	11	1	9.09	36.36	—	—	—
Malden	37,205	11	3	18.18	—	—	—	—
Salem	37,188	16	5	6.25	—	—	—	—
Chelsea	36,499	18	2	5.55	16.67	—	—	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	14	5	14.28	28.56	—	7.14	—
Everett	30,209	7	1	14.30	—	—	—	—
North Adams	30,201	10	4	20.00	10.00	—	—	—
Quincy	26,798	5	3	20.00	—	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	4	—	—	—	—	—	—
Brookline	23,576	5	2	20.00	—	—	—	—
Pittsfield	23,870	10	—	40.00	—	—	—	—
Medford	21,956	9	1	—	11.11	—	—	—
Chicopee	21,692	6	1	—	33.33	—	—	—
Northampton	20,314	5	1	—	—	—	—	—
Beverly	15,807	5	1	—	20.00	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	7	2	14.30	—	—	—	—
Adams	14,745	3	1	16.67	—	—	—	—
Attleboro	14,561	2	—	—	—	—	—	—
Hyde Park	14,500	6	3	33.33	—	—	—	—
Newburyport	14,478	7	0	—	14.30	—	—	—
Woburn	14,315	6	—	16.67	—	—	—	—
Melrose	13,819	4	1	50.00	—	—	—	—
Westfield	13,809	3	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	3	0	66.67	—	—	—	—
Revere	13,609	4	—	50.00	—	—	—	—
Framingham	12,974	5	—	40.00	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	11,894	10	7	20.00	40.00	—	—	—
Southbridge	11,716	1	1	100.00	—	—	—	—
Watertown	11,575	2	0	50.00	—	—	—	—
Weymouth	11,350	2	2	—	50.00	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,957; under five years of age, 1,004; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 968; acute lung diseases 795, consumption 491, scarlet fever 46, whooping cough 13, cerebrospinal meningitis 81, smallpox 5, erysipelas 13, puerperal fever 16, measles 53, typhoid fever 62, diarrheal diseases 110, diphtheria and croup 69, influenza 9.

From whooping-cough, New York 8, Philadelphia 1, Baltimore 1, Pittsburg, 2, Worcester 1. From smallpox, Philadelphia 5. From cerebrospinal meningitis, New York 77, Boston, Brockton, Adams and Gardner, 1 each. From erysipelas, New York 5, Philadelphia 2, Cambridge 2, and Boston, Worcester, New Bedford and Taunton 1 each. From typhoid fever, New York 8, Chicago 6, Philadelphia 38, Baltimore 1, Pittsburg 6, Boston 1, Lynn 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending September 23, the death-rate was 16.0. Deaths reported 4,697; acute diseases of the respiratory organs (London) 127, whooping cough 215, diphtheria 42, measles 199, smallpox 6, scarlet fever 34.

The death-rate ranged from 5.1 in Willasden to 25.6 in Warrington, London 16.0, West Ham 13.9, Brighton 16.5, Southampton 13.9, Plymouth 16.5, Bristol 15.2, Birmingham 22.4, Leicester 12.6, Nottingham 13.0, Liverpool 19.8, Bolton 13.1, Manchester 22.0, Salford 19.4, Bradford 16.3, Leeds 16.2, Hull 17.3, Cardiff 13.9, Rhondda 17.5, Wigan 17.4, Marthyr Tydfil 17.9, Reading 11.6, Halifax 15.5.

METEOROLOGICAL RECORD.

For the week ending May 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 1	29.98	50	56	44	76	73	74	N E	S E	8	9	O.	C.	0
M. 2	30.30	51	57	45	65	57	61	N	S E	6	10	C.	C.	0
T.. 3	30.36	54	65	43	40	61	50	S W	S W	6	12	C.	C.	0
W. 4	30.25	64	80	49	48	54	51	S W	S W	7	12	C.	C.	0
T.. 5	30.05	69	82	56	51	44	48	W	W	12	9	C.	F.	0
F.. 6	30.24	56	63	50	40	41	40	E	S	14	11	O.	C.	0
S.. 7	30.18	65	81	49	76	64	70	S W	S W	4	14	C.	C.	0
☞	30.19		69	48			56							0

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace ☞ of rainfall. Mean for week.

SOCIETY NOTICES.

THE AMERICAN CONFEDERATION OF RECIPROCATING EXAMINING AND LICENSING MEDICAL BOARDS. — The third annual meeting of the American Confederation of Reciprocating Examining and Licensing Medical Boards will be held in the Great Northern Hotel, Chicago, Tuesday, May 24, 1904.

B. D. HARRISON, M.D., Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. — The tenth annual meeting of the American Laryngological, Rhinological and Otological Society will be held at Chicago, Ill., May 30, 31, June 1, 1904, in the Auditorium Hotel. The profession is cordially invited to attend.

WENDELL C. PHILLIPS, M.D., Secretary.

SUFFOLK DISTRICT MEDICAL SOCIETY. — There will be a meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8, The Fenway, Wednesday, May 25, at 8 P.M. Papers: Dr. Charles H. Harwood. "Some Injuries of Parturition, Their Cause and Treatment;" Dr. A. Palmer Dudley, "Dudley's Operation for Restoration of the Perineum."

W. H. GRANT, M.D., Secretary.
DANIEL H. CRAIG, M.D., Chairman.

RECENT DEATHS.

BENJAMIN FRANCIS MOULTON, M.D., M.M.S.S., of Lawrence, died May 3, 1904, aged fifty-eight years.

BERNARD MACKAY, M.D., a wealthy retired New York physician, was run over and killed by a fire engine, near Madison Square, on May 12, the accident being due to Dr. Mackay's deafness, from which he had suffered for many years. He was seventy years of age and a son of Col. William Mackay of the British army. He was born and received his medical degree in England, and although he had been in the United States for over forty years, he always remained a British subject.

WILLIAM WATERWORTH, M.D., of Brooklyn, N. Y., died on May 11. He was born in Salem, Ohio, in 1851, and was graduated from Adelbert College and in 1878 from Bellevue Hospital Medical College, New York. He had practiced in Brooklyn for twenty-two years, and at the time of his death was attending surgeon to the Brooklyn Eye and Ear Hospital.

WILLIAM H. MCGEE, M.D., a prominent physician of Warren County, died at his home in Belvidere, N. J., on May 11, at the age of fifty-six years.

BOOKS AND PAMPHLETS RECEIVED.

Exercise as a Mode of Treating Diseases of the Heart. By N. S. Davis, Jr., A.M., M.D. Reprint.

Korsakoff's Psychosis — Report of Cases. By Harry W. Miller. Reprint.

Atrophy of the Prostate. By Robert C. Bryan, M.D. Reprint. 1904.

La Rachitide e le Deformità da essa Prodotte. Dr. Paolo Mancini. Illustrated. Milano: Ulrico Hoepli. 1904.

Proceedings of the Eighteenth Annual Meeting of the Conference of State and Provincial Boards of Health of North America. Baltimore, October 23 and 24, 1903. Providence: Snow & Farnham.

Graves' Disease With and Without Exophthalmic Goitre. By William Hanna Thomson, M.D., LL.D. New York: William Wood & Co. 1904.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By Richard C. Cabot, M.D. Fifth revised edition. Illustrated. New York: William Wood & Co. 1904.

Manual of Materia Medica and Pharmacy. Specially designed for the Use of Practitioners and Medical, Pharmaceutical, Dental and Veterinary Students. By E. Stanton Muir, Ph.G., V.M.D. Third edition, revised and enlarged. Philadelphia: F. A. Davis Company. 1904.

Seventh Annual Report of the Loomis Sanatorium and Annex. (For the Treatment of Tuberculosis.) Oct. 31, 1903.

Scientific Reports of the Investigations of the Cancer Research Fund. Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. No. 1. Illustrated. London: Taylor and Francis. 1904.

Case Teaching in Surgery. By Herbert L. Burrell, M.D., and John Bapst Blake, M.D. Philadelphia: P. Blakiston's Son & Co. 1904.

A Practical Treatise on Medical Diagnosis. For Students and Physicians. By John H. Musser, M.D. Fifth edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Elements of General Radio-Therapy for Practitioners. By Dr. Leopold Freund. Translated by G. H. Lancashire, M.D. Brux., M.R.C.S. Eng., L.R.C.P. Lond. Illustrated. New York: Rebman Company. 1904.

Mayor Harrison on the Department of Health. Chicago 1904. Reprint.

State Requirements (Summary) for Medical Practice. Compiled by the Illinois State Board of Health. 1904.

Materia Medica, Pharmacology and Therapeutics. Inorganic Substances. By Charles D. F. Phillips, M.D., LL.D. (Abdn. and Edin.), F.R.S. and F.R.C.S. (Edin.) Third edition. London, New York and Bombay: Longmans, Green & Co. 1904.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend Bacterien, Pilze und Protozoën Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten und Dr. med. F. Tangl. Achtzehnter Jahrgang 1902. Erste Abtheilung. Leipzig: Verlag von S. Hirzel. 1904.

Typical Tuberculosis. Selected cases from a report entitled Collective Investigation on Tuberculosis. By John Aulde, M.D. Philadelphia. 1904.

Practical Clinical Notes on the Administration and Action of Iodo-Nucleoid or Organic Iodine. By G. Frank Lydston, M.D. Reprint.

Is the Journal of the American Medical Association a Partisan Organ? By G. Frank Lydston, M.D. Reprint.

How to write a Medical Article; a Plea for Plagiarism. By G. Frank Lydston, M.D. Reprint.

Out of Door Treatment for Tuberculosis at the Columbus State Hospital. By George Stockton, M.D. Reprint.

Elettricità Medica. Dr. A. D. Bocciardo. Illustrated. Milano: Ulrico Hoepli. 1904.

Thirty-fourth Annual Report of the Massachusetts Homœopathic Hospital. For the year ending December 31, 1903.

Proceedings of the American Medico-Psychological Association at the Fifty-ninth Annual Meeting, held in Washington, D.C., May 12–15, 1903.

University of California Publications: Physiology. On the Influence of the Reaction of the Sea-Water on the Regeneration and Growth of Tubularians. By Jacques Loeb. The Influence of Saline Purgatives on Loops of Intestine Removed from the Body. By John Bruce MacCallum. The Secretion of Sugar into the Intestine caused by Intravenous Saline Infusions. By John Bruce MacCallum. Berkeley, The University Press, 1904.

Kissingen für Herzkranke. Von Dr. J. Leusser. Dritte Auflage. Bad Kissingen, 1904.

Department of Interior. Bureau of Government Laboratories. Chemical Laboratory. The Gutta Percha and Rubber of the Philippine Islands. By Penoyer L. Sherman, Jr., Ph.D. Manila, 1903.

Department of the Interior. Bureau of Government Laboratories. A Dictionary of the Plant Names of the Philippine Islands. By Elmer D. Merrill. Manila, 1903.

Pettigrew's New England Professional Directory. 1904. By Richard R. Pettigrew, M.D. Boston: The Garden Press.

Clinical Lecture.

DR. WATSON AND MR. HOLMES; OR THE WORM THAT TURNED.

BY J. W. COURTNEY, M.D., BOSTON.

"Ah, good morning, Holmes," said Dr. Watson, without even raising his eyes from the paper which lay before him on the table, at his clinic for diseases of the nervous system. "Somewhat surprised, I see, that I should know who it was," he continued, as he went on reading. "It's very simple, as you are wont to say." He pushed back his chair, looked up and extended his hand. " In the first place, I had just looked at my watch and seen that it was a quarter after eleven. Now under no circumstances is a patient admitted after eleven; and when I looked over the assembly on the benches some ten minutes ago, there wasn't a soul there that didn't have some defect in his gait. My assistants and the hospital attendants are trained not to enter without knocking. What's more, there came to my nostrils, above the stuffy odor of the clinic, the smell of that awful Red Herring brand of cigarettes, which you alone of all my extensive acquaintance are able to smoke. Now, my dear fellow, as to your being surprised. You can't deny that since your awful experience with our late friend, Moriarty, your nerves have got the faintest bit on edge. As I read, your legs from the knees up fell just in range of vision from the tail of my eye, and I was able to see that my salutation produced the faintest upward twitch of your trousers through an involuntary contraction of the thigh muscles. 'Pon my word, though, you are the most unsatisfactory fellow! I've been begging you to come here for years to see the only really interesting phase of human morbidity, and you have persistently denied yourself this intellectual treat. And now you drop in upon me from the clouds, when I haven't a bally thing on hand that's worth while."

During this outburst, so astonishingly long-winded for the erstwhile shrinking and self-effacing Watson, Sherlock the magnificent stood gazing at him with the well-known look of amused superiority which he invariably kept on tap for his mix-ups with the upstart Lestrade. Not a muscle of his long, keen face relaxed, but his pallor deepened, until Watson, who watched him narrowly, wondered if he really did have pernicious anemia, or if his lemon-yellow complexion were merely the result of the excessive use of breakfast food subcu, coupled with the inhalation of the fumes of Red Herring cigarettes. He knew that his quondam mentor was decentering the tigroid bodies of his higher cortical cells in the act of thinking, but just what was at the bottom of these obvious mental gymnastics eluded his penetration.

For the benefit of our readers, we will explain. Holmes was miffed, for it was now disagreeably obvious to this twentieth century prodigy that during his long demise his microcephalic ex-serf, the doctor, either by the excessive use of that minute portion of his anatomy which lay under his thatch, or by the vicarious function of some other organ, had developed his rudimentary faculty of thought. It was also annoyingly evident to him that the pathways between the place — wherever it might be — that Watson used in thinking, and the organs whereby he externalized thought, had been thoroughly cleared of all the tangle and pseudo-intellectual underbrush which formerly so effectually impeded them. In his wildest flights of cocainized fancy no such thing as a rival had ever taken shape. And now suddenly to bump into the possibility, so to speak, in tangible form, and that, too, in the form of this low-grade idiot of a Watson, made him feel like a four-ply Rip Van Winkle.

During this prolonged fit of abstraction Holmes had made up his mind on at least one point: Watson must be squelched, once and for all.

"You're right, my dear Watson," he said finally, with assumed cordiality. "I ought to have come round before, but you know how many really important things I have to disentangle, and how little time I have to waste on the obvious, but I've made up my mind to devote a morning to you, and if you'll name a day I'll be here."

" Any day will suit me," said Watson, politely refusing a proffered Red Herring cigarette. "I'll go along with you now and we'll decide as we walk."

Watson rang the bell for an assistant, left the remaining patients in his charge, and started from the hospital with Holmes, arm in arm.

It was Monday and the throng about the doors was of the usual large proportions after the Sunday inactivity of the out-patient departments. At the exit from the lodge the way was temporarily blocked to Holmes and his *fidus Achates* by a burly fellow on crutches, who seemed to handle the one under his right arm with peculiar difficulty for a man of his powerful build. As they went along Holmes turned to Watson and said with a tinge of malice, "Why can't the duffers of surgeons give these poor devils proper crutches? It's bad enough to think of that chap's family being without his support for a long time on account of his foot, but an extra two months' loaf with a crutch-maimed arm is an outrage. There are an awful lot of incompetents in your profession, Watson."

Watson stopped and eyed the man with the crutches keenly, his face flushed with indignation at Holmes' sneer at the profession.

"I think you're entirely wrong in your conclusions, my friend," was his only reply. Then as the object of their remarks came along, he stopped him and said, "You'd have been better off without the liquor, wouldn't you, my good man?" Watson's question was accompanied by a significant glance in the direction of the big fellow's right hand.

The lout, with the instinct of his class, at once recognized the professional calling of his questioner, hung his head sheepishly and replied, "I guess it was the booze that did me up all

right, for I was doing fine with the foot till I got out with a crowd of my friends Saturday night. Nothing would do them but they must stand treat to celebrate the getting better with the foot. I was loaded when I got home, but the hand seemed all right then. Yesterday morning, though, when I woke up, it was all numb and deadlike, and it ain't been no use to me since."

During this reply Holmes appeared restless and uneasy, and at its conclusion he took Watson by the arm and said, "I'm in quite a hurry, old man, and if you're coming along with me, you'll have to come at once."

Watson hastily directed the man to come to his clinic the next day and started along with Holmes.

Holmes was consumed with inward rage; he knew that Watson would rough him at the earliest opportunity, and decided to give him no opening. He immediately started in and talked a blue streak on the probable cost of the midnight oil consumed by Homer while writing the "Iliad." He figured it out by a secret process of calculation, which he knew would excite Watson's envy, and this in itself brought a certain amount of balm to his wounded feelings.

Watson let him rattle on until they were near Holmes' lodgings, and then butted in with "I say, old chap, do you still hold the views on surgical incompetency that you expressed a while ago, and do you still feel that you should not waste your time on the obvious?"

Holmes grunted and quickened his pace.

"Because if you do," went on the imperturbable doctor, "I think a morning at my clinic will prove a strong mental corrective. By the way, I must make a note to send you a reprint of my lecture on the fallaciousness of the apparently obvious in clinical diagnosis. This case we just saw exemplifies my teachings beautifully, and you must confess, my dear Sherlock, that you did not give due consideration to all the factors entering into it. Had you noticed the soiled condition of the padding on the tops of the crutches, it would have been obvious to you that the padding had been put there at the time the crutches were given. This fact in itself demonstrates that the surgeon was cautious, and precludes to a large extent the possibility of crutch paralysis; now this is Monday, and the day on which we usually get a crop of Saturday-night paralysis, that is to say, paralysis of the radial nerve caused by a drunk's sleeping on his arm; but enough of this. You come round on Friday and I'll try to show you something interesting."

On Friday morning Watson left the place that most people call home, but which with him was merely a place to stay when he wasn't needed by Holmes. He proceeded to the latter's lodgings in Baker Street, and the two went on together to the hospital. Arrived there, Watson cast a searching glance over the benches and ushered Holmes into the consulting room. Then he rang the bell and ordered the externe to show in first the musician on the front seat.

"I'm sorry, sir," said the externe, "but I haven't had time to take any histories, and I don't know who you mean."

Watson walked to the door, threw it open, and beckoned to a man sitting on the front seat. The patient entered and sat before Watson's table.

"Musician, did you say?" asked Holmes apathetically.

"Yes, musician, and I should add, a player on a wind instrument."

Holmes examined the man's buccinators in their normal condition, and then got him to puff out his cheeks. He appeared satisfied with his examination, and when Watson asked him if he had made up his mind as to how he, Watson, had arrived at his conclusion as to the man's occupation, he answered in a tired way, "Why, certainly, you have only to look at the muscles of his lips and cheeks; they tell the story."

"Wrong," said Watson; "it's much simpler than that. Just observe the little goatee he wears. I venture to say he believes the loss of that would prevent his playing for a week. Am I right?" he asked, turning to the man.

"Oh, yes, sir. I wouldn't cut that off for the world; it's strengthening to the lip, and I shouldn't be able to play till it grew again."

Watson soon got at the facts of the case, examined and disposed of it.

During this time Holmes looked absently out of the window.

The next patient was ushered in, and without speaking, presented a note to Watson. The latter, without looking at the note, exclaimed, "Ah, a teamster, I see."

"That observation was superfluous," broke in Holmes superciliously. "I knew he was a teamster the moment I saw him. He has the complexion of a man much exposed to the weather and wears the sort of clothes common to people of that class."

"That may all be true, but it would apply equally well to a cabman; and it is dangerous to draw conclusions on such general grounds. Perhaps you did not notice that this man took the note he brought me out of his hat — a typical teamster trick."

Holmes made no reply, but bit his lips furiously while Watson read the note. Watson turned the case over to his assistant and called for the next patient. It proved to be a man with a marked tremor of the right hand. Without a word, Watson took hold of the trembling hand and observed it closely for a few moments. Then he said quietly, "Here, my dear Holmes, is an interesting tremor in a left-handed plasterer, who has done no work for some time. Am I right, my man?"

"Quite right, sir," was the answer. "I'm left-handed and I'm a plasterer by trade, but this cursed shaking has laid me up for nearly six months now." At this point Holmes was about to say something, but hesitated and looked the man over carefully in silence. Watson sat quietly back in his chair and observed his friend's

scrutiny of the patient with an amused twinkle in his eye.

Holmes' face was a study. It had grown several shades yellower than usual, and again made Watson think of pernicious anemia. The powerful magnifying lens was now brought into play and the man's nails, ears and eyebrows thoroughly examined by its aid. Obviously Holmes was stumped. By this time he was breathing hard and mopping his brow.

After a time Watson broke in with: "Well, my dear Holmes, what do you say?"

"Nothing, except that it's beastly stuffy in this room," growled Sherlock, the peerless.

"Well, let's have a window open, and then, perhaps, I can show you a thing or two of interest about this man that you may have overlooked with your glass. You will first observe that the tremor involves the right hand. On looking at this hand closely, you will see a half-softened callus over each joint of the thumb, and similar ones over the root joint and the one next to it of the forefinger. You see none over any other joints. This shows that these particular joints mentioned must habitually come in contact with some hard surface. Now, from my study of artisans' hands, I know that this condition is peculiar to the plasterer, and that it is brought about by the contact of the mortar board. In this case it is the right hand that shows the condition, so the man must do the actual plastering with the left. I hardly need mention that the somewhat softened condition of the calluses indicates this man's abstinence from work for some time."

While Watson was engaged in demonstrating the reasons for his conclusions, Holmes paced rapidly up and down the room, apparently paying not the slightest attention. Finally he whipped out his watch, looked at it, and said, "By Jove, Watson, I must go. I've got an important engagement that I had almost forgotten."

"Oh, don't be in such an infernal rush," replied the doctor. "I've got to get away early myself. I'll tell you what I'll do. I'll just turn this man over to my assistant, see the next case or two hurriedly, and then go along with you."

At Watson's order the next case was led in. "This man," said the externe, "is a rubber-cutter, and his complaint is of headache and dizziness."

"Now, Holmes," said the doctor, "won't you just look at this fellow's gums with your glass and see if you don't see a dark line at the junction of the gums and teeth. You do — thank you. It's a clear case of lead poisoning, just as I thought. Now, my man, let me look at your tongue."

A sudden exclamation from Holmes caused Watson to look at him. As he did so he noticed that his friend's face had suddenly taken on an expression very like what one might expect to see in a mummy that had been spoiled in the making. "Did you speak?" he asked, somewhat maliciously.

"No," growled Holmes between his clenched teeth, "but the diagnosis in this case is too absurdly clear. This man has either been doing some painting at home, or else he uses a hair wash containing lead. Isn't that so, my good fellow?" asked Sherlock, addressing the patient.

"Aw, I never washes me hair," was the reply; "and I have enough to do in the shop without bothering with no painting at home. It ain't in my line."

Holmes collapsed in his chair.

"Perhaps if he will tell us just what his functions as a rubber-cutter are, it will help you to arrive at a correct solution of the problem," put in the doctor, dryly. "Exactly what is your work, my man?"

"I just puts the patterns down on the sheet rubber and cuts around them with a knife," was the answer.

"Does that help you, Holmes?" asked Watson.

The great detective sat dejectedly and made no reply.

"Well, we won't waste any more time on it," rattled on Watson, "but the situation is just this. From your extensive reading and observations, you must know that in the preparation of rubber there is used a considerable amount of litharge, or the red oxide of lead. Now you don't have to examine this fellow's hands very closely to conclude that soap is not a large factor in his items of expenditure. My glance at his tongue showed me that he is an habitual tobacco chewer. On the basis of these two observations, I concluded that the transference of really considerable amounts of the lead from fingers to mouth was a daily occurrence. And now I'm about ready to toddle along with you. From certain sounds I have heard in the last few minutes, I think there's a deaf man with general paralysis in the further room. I'll just run in and look at him, and then I'm at your service." Watson rose from his chair and went toward the door. As he was about to turn the knob, he heard a low moan followed by a thud, and looking round, he saw that Holmes had fallen apparently lifeless on the floor.

Original Articles.

SULPHUROUS ACID AND ITS SALTS AS FOOD PRESERVATIVES, AS AIDS TO FRAUD, AND AS POSSIBLE CAUSES OF LESIONS OF THE KIDNEYS.

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SULPHUROUS acid and its sodium and calcium salts have long been used as preservatives of various articles of food and drink, as fish, meats, sausages, fruits, jams, dried vegetables, cider and wines; and, more especially, for their action in producing an improvement in appearance suggestive of superior quality. Thus, canned corn

and canned asparagus are bleached to a uniform white, and meats are made to acquire the redness of arterial blood. The salts are used both in powdered form and in solution, and sometimes in conjunction with borax and boric acid.

In the treatment of meat, the sodium salt ($Na_2 SO_3 . 7H_2O$) is the compound most commonly employed. While this is used to some extent in and on meats as commonly bought and sold, its chief field of usefulness is in the preparation of minced or ground meat, which is sold to an enormous extent on the Continent under the name "Hackfleisch" and in this country as "Hamburg steak." This is made in great part from trimmings and various inferior parts not otherwise salable, which accumulate in the receptacles for waste in meat stalls and naturally acquire an extensive bacterial flora. Without the addition of a chemical preservative, the commercial life of the finished product would necessarily be very short. But this is not the sole, nor the main, reason for the employment of this particular agent, than which several more efficient preservatives are known. The chief incentive to its use is the fact that it exerts a preservative influence on the hemoglobin and favors the formation of the markedly redder oxyhemoglobin, and thus causes the meat to look invitingly fresh, even though the original material was stale, of bad appearance, and swarming with bacteria. Moreover, it acts as a deodorant. Not only does it cause the characteristic, faint and not unpleasant odor of fresh meat to disappear very quickly, but it masks the foul odors of decomposition. Thus, although apparently fresh to the eye and nose, the prepared mass may be well advanced in decay and teeming with bacteria. Altschuler [1] found that untreated meat yielded 1,829,100,000 bacteria per gram at the stinking stage, while another portion which had been treated with 1% of the salt did not stink until its bacterial content was 4,757,000,000 per gram. Long before this stage is reached, however, a physical change occurs, which reveals itself to the touch. Fairly fresh Hamburg steak feels but faintly moist; it can be handled without adhering to the fingers. Very stale specimens, on the other hand, feel slimy, and particles thereof adhere to the fingers with such tenacity that scraping is necessary for their removal.

The red color which is produced is most intense on the exterior of the mass; indeed, the interior may be quite dark in color; but exposure of the inner portions to the air brings about a rapid change to bright red. The persistence of the redness is dependent largely upon the amount of the salt used.

As a preservative, sodium sulphite is not powerful. Various observers, including Landolt and Rubner, Kisskalt, Gartner and Kionka, say that it can confer redness without exerting much action as a preservative. Altschuler finds that it has an appreciable influence due to its power to inhibit bacterial multiplication; that when present even to so slight an extent as 0.05% it is more or less active; that its maximum influence is exerted when it is present to the extent of 0.5%; and that more than 0.5% confers no additional power. He saw untreated meat grow in bacterial content from 1,200,000 per gram on the first day to 1,829,100,000 on the fourth, while that to which 0.5% of the salt had been added yielded but 2,500,000 on the fourth and 300,500,000 on the ninth. In my own laboratory, a piece of solid meat (round of beef) was hashed and then divided into two equal portions, one of which was treated with 0.2% of the sulphite and the other left as it was. The two portions were kept in a refrigerator under precisely similar conditions, and the number of bacteria per gram was determined from day to day, as follows:

	Plain Meat.	Treated Meat.
After 1 day	610,000	1,760,000
" 2 days	1,045,000	1,600,000
" 3 "	2,709,000	2,709,000
" 4 "	6,579,000	3,999,000
" 5 "	10,346,000	2,322,000
" 6 "	26,313,000	3,483,000
" 7 "	Very foul odor	Faint mouldy odor

It must be remarked, however, that the influence of the salt is seen to best advantage when the meat is kept at a low temperature, for at ordinary room temperature it appears to lose its power very markedly. Indeed, by itself at room temperature, it appears to have less preservative influence than the low temperature of a refrigerator, as was shown by Gartner,[2] who found that untreated meat kept at 39° F. in a refrigerator yielded 320,000 bacteria per gram after twenty-four hours and 575,000 after forty-eight hours, while meat not so stored, but containing 0.09% of the sulphite, yielded 448,750 and 5,385,000, and containing 0.36% yielded 448,750 and 678,000. Janke,[3] too, experimenting with meat containing 0.2, 0.4, and 0.6%, found its preservative effect to be slight, but agreed that the salt can cause decomposing meat to have a normal appearance. Lange [4] found that in the decomposition of treated and untreated meat there was but a slight difference in time when 0.5 and 1.0% of the sulphite was employed, but that when as much as 2.0 to 4.0% was added the meat kept well for a time and then broke down suddenly. Stroscher [5] found that treated meat decomposed about as quickly as that to which nothing was added. Mayer [6] found that 10 samples containing from 0.304 to 0.573% of sulphite yielded from 1,695,000 to 471,511,000 bacteria per gram, whereas home-made specimens yielded from 4,560 to 890,154. The latter retained the natural red color for a time and then changed to the brownish tint that untreated meat acquires on standing, but the admixture of 0.5% of the sulphite after twenty-four hours produced the abnormal redness described. Portions kept forty-eight hours and then treated did not change their color.

[1] Archiv. fur Hygiene, xlviii, p. 114.

[2] Zeitschrift fur Untersuchung der Nahrungs- und Genussmittel, March 15, 1901, p. 241.

[3] Chemiker Zeitung, 1901, No. 794.

[4] Archiv. fur Hygiene, xl, p. 143.

[5] Archiv. fur Hygiene, xl, p. 291.

[6] Hygienische Rundschau, September 15, 1901, p. 877.

Contrary to what one would naturally suppose, the bacterial content of a specimen bears no relation to the amount of added preservative, as has been shown by Stroscher and others. Thus, Stroscher determined the number of bacteria per gram in 16 samples which contained from 0.029 to 0.520% of sodium sulphite. The two highest counts, 62,096,000 and 54,056,000, were yielded, it is true, by samples containing but 0.065 and 0.075% of the salt, but the next highest, 50,917,000, was yielded by one that contained the largest addition (0.52%). That which contained 0.43% yielded but 147,000, while that with 0.47% gave 14,138,000, or about 600,000 more than one that contained but about a sixth as much (0.08%).

The reason why no such relationship exists is, however, very clear, for, as has been said, much of the material used in manufacture may be swarming with a rich bacterial flora before it is introduced into the hashing machine.

For the production of the desired effects, the presence of at least 0.1% of the salt is necessary, but the addition of 0.2% is generally recommended. It would appear, however, that the manufacturers adhere pretty strictly to the rule of thumb, for the amounts used are very widely variable; and although less than 0.1% is often found, it is more commonly the case that far more than the recommended 0.2% is employed, and even as much as 4.0% has been found. Quantitative determinations in the foreign food laboratories show how generously the salt is administered. Thus, reports from Dresden show that of 54 samples, 38 contained less than 0.4%, 11 contained between 0.4 and 0.6, 1 contained between 0.6 and 0.8, and 4 contained between 0.8 and 1.0%. From Breslau come reports of 0.4 to 0.8% in 7 samples, and of 0.856, 1.708 and 2.80% in others; from Weimar, 0.612, 1.024, and 1.50; from Essen, 0.52 and 0.6; from Aachen, 0.44 and 0.64; from Dusseldorf, 0.156 to 0.960; from Crefeld, 0.28, 0.44, 0.48, 0.56, 0.64 and 0.68; from Cologne, 2.24; from Hamburg, 5 samples with less than 0.4, and 11 with from 0.4 to 1.02; from Altenburg, 1.756. In a number of places in Germany it has been proved that the great majority of meat dealers use it, and in Dantzig no fewer than 112 of the 121 butchers were haled to court therefor a year after its use was forbidden by the German government. So far as I am aware, the subject has received but slight attention in the United States and no statistics are to be had; but in Boston as will be seen — and the conditions here will doubtless be found to be the same elsewhere — its use is the rule, 50 samples examined by me showing its presence in amounts ranging from 0.061 to 1.225%, with not a single one free from it. They were collected in different parts of the city from dealers supplying all classes of customers — from stores and market-stalls patronized by the rich and well-to-do, and from small shops in the poorer quarters. The prices paid ranged from 7 to 15 cents per pound, but 10 cents was the rule. In the following table, the samples are placed in the order of their content of sodium sulphite, from the lowest to the highest.

Sample Number.	Percent Sodium Sulphite.	Sample Number.	Per cent Sodium Sulphite.
22	0.061	1	0.300
16	0.078	40	0.301
32	0.081	8	0.304
45	0.099	50	0.322
14	0.172	11	0.338
18	0.179	12	0.355
19	0.196	33	0.360
17	0.199	2	0.372
35	0.208	20	0.388
9	0.210	37	0.390
38	0.241	31	0.392
48	0.241	36	0.400
44	0.246	34	0.405
43	0.251	26	0.415
46	0.251	27	0.436
23	0.255	30	0.436
10	0.257	15	0.442
41	0.261	49	0.446
47	0.266	5	0.463
29	0.267	6	0.466
24	0.274	28	0.527
7	0.277	4	0.581
13	0.287	21	0.628
25	0.290	3	0.648
39	0.297	42	1.225

Average — 0.335.

The most brilliantly red specimen, Number 16, contained but 0.078%, and owed its intense color, which was uniform throughout the mass, chiefly to the presence of an anilin dye. Many of the specimens were sticky and slimy and gave off peculiar, disagreeable odors. Several gave off the characteristic odors of putrefaction. Number 42, which was richest of all in sulphite, was exceedingly sticky and slimy, and had a very peculiar odor, but was of pleasing appearance.

In the stomach, sulphites are attacked by the gastric juice, with liberation of sulphur dioxide. The energy with which the gastric juice acts is dependent upon its content of hydrochloric acid, which averages about 0.2%. In conditions of hyperacidity, therefore, such as are common to a number of pathological conditions, the decomposition of the salt occurs at the maximum rate. Stroscher asserts that the presence of even 1% of acetic acid is sufficient to bring about the change; and hence when sulphited meat is prepared as beefsteak à la Tartare the opportunity for the disengagement of sulphur dioxide is thereby increased. It would appear from various writings on the subject of sulphited meat that the influence of sulphur dioxide on the system was shown first in 1869 by Bernatzik and Braun,[7] who administered 80 mgm. of free sulphurous acid in 360 cm. of sugar-water in divided doses extending over twenty-four hours to each of 14 women with various disorders of pregnancy. Only two could bear the dose at all well; the others bore it very badly and suffered from eructations of sulphur dioxide, unpleasant taste, violent diarrhea, vomiting, and general discomfort lasting a whole day. Doses of 1 gm. of magnesium sulphite also were badly borne, the chief manifestation of ill effects being vomiting and diarrhea. Doses of 3.75 gm. of sodium

[7] Wiener medicinische Wochenschrift, xix, 1869.

bisulphite were given to 12 women, but only 4 showed no ill effects; several were purged soon after the first dose. In 1884, Ogata [8] showed that sulphur dioxide is an active poison to animals when inhaled, the lesions appearing in the lungs. Pfeiffer,[9] experimenting with aqueous solutions of sulphur dioxide applied to the gastric mucous membrane, observed remarkably intense action, even with very dilute solution of the gas. Intense gastritis was produced by 0.5 to 1.0% solutions, and death was caused in a very short time by a 5% solution, with marked corrosion not only of the several layers of the stomach wall but even of the surface of neighboring organs.

Borntrager [10] states that he cannot eat certain sausages nor drink certain Rhine and Moselle wines without suffering from eructations of sulphur dioxide and hydrogen sulphide, and from weight in the stomach, discomfort and headache lasting for some hours. Pfeiffer asserts that he and others suffered from oppression and discomfort after a half gram of sulphite in very dilute solution, and Leuch,[11] that wines containing free sulphur dioxide cause discomfort much more readily than those that contain it in combination, 45 mgm. of the former being equal in power to 250 of the latter. These amounts, taken in about a third of a quart of wine, caused irritation of the throat and headache; and 55 and 350 mgm., respectively, caused more severe headache with diarrhea. He observes that individuals vary widely in susceptibility.

The fact that many persons show distinct evidence of disturbance from as little as 0.01% of the anhydride or 0.04 of the salt, leads Borntrager to the conclusion that the continued ingestion of small amounts of sulphites causes serious injury to the organs without the manifestation of any outward sign of sickness.

It is true that after the addition of sodium sulphite to meat it becomes slowly oxidized to sulphate and then loses its toxic properties, since in that form it cannot be split up by the gastric juice. Gartner states that he has recovered from 56.8 to 87.3% of the original amount as sulphite, twenty-four hours after the admixture to meat, but Polenske [12] recovered no less than 81% from a sausage after three months, and from 72 to 77% after six months. Borntrager states that about a third of the amount present is lost during cooking.

The first to show definitely what harm may result to the system from the continued ingestion of sulphited meat was Kionka,[13] who, in 1896, reported that repeated small doses administered to dogs produced serious lesions in various parts of the system. In 1898, the use of sulphites in foods was forbidden by the German Imperial Board of Health, which body, in answer to the assertion of the butchers that the addition of a sulphite to minced meat is necessary, replied that it is possible to prepare minced meat from freshly slaughtered meat without the use of chemical preservatives, but with the observance of strict cleanliness, and that on storage at low temperatures its natural red color can be retained longer than twelve hours; that the addition of sulphites and of preservative preparations containing them tends to improve the color but not the meat itself, and to give the meat an appearance of superior quality; and that the constant use of minced meat containing sulphites can injure the system, especially in the case of the weak and sick.

The findings of Kionka and the Imperial Board of Health have been attacked by Liebreich and others as unwarranted. Kionka's experiments were repeated by Lebbin and Kallmann,[14] one of whom is a chemist and the other a veterinarian, but neither of them a pathologist, who reported an entire absence of lesions on autopsy. A new series of experiments on a more extensive scale gave Kionka and Ebstein [15] results identical with those obtained before, which were confirmed also by Schultz.[16] In both of Kionka's series of experiments and in those of his opponents as well, the dogs employed showed at no time any outward appearance of injury, but on the contrary, in one series, gained in weight up to the ninth week, when they were killed. Two of Schultz's dogs soon showed evidence of illness; they were purged and were reluctant to eat, but all showed a gain in weight at the end. In all of Kionka's and Schultz's dogs, nephritis was a constant result. In my own experiments, which were begun before I knew of Schultz's paper and of Kionka's second series, I employed cats, which have the advantage over dogs in experimental feeding that they are not subject to idiopathic nephritis, which occurs in about 25% of dogs kept under observation in cages. Six cats were fed for twenty weeks, five receiving six feedings weekly of meat containing 0.2% of sodium sulphite, and the sixth receiving the same meat with no addition. The latter showed a constant gain in weight to the end; the others gained until about the ninth week and then began to lose ground, frequently refusing food or leaving it largely uneaten, but otherwise they showed no evidence of injury. At the end of twenty weeks they were killed with chloroform and examined by Dr. E. E. Tyzzer of the Department of Pathology of the Harvard Medical School. There was no macroscopic evidence that the chemical had produced any changes in the organs, but thin slices were cut from each of the organs of each cat, fixed in Zenker's fluid, and then imbedded in paraffin and cut. Eosin and methylene blue were used for general staining, and Mallory's stain was employed, also. The microscopical findings were by no means so extensive as those yielded by Kionka's dogs. Indeed, apart from some slight inconstant variations in the spleens, all of the organs of each animal were

[8] Archiv. fur Hygiene, ii, p. 223.
[9] Archiv. fur experimentelle Pathologie und Pharmakologie, xxvii, 1890.
[10] Die Beurtheilung des Zusatzes schwefligsaurer Salze zum Fleische vom Sanitatspolizeilichen Standpunkte. Leipzig, 1900.
[11] Correspondenzblatt fur Schweitzer Aertze, 1895, No. 15.
[12] Arbeiten aus dem Kaiserlichen Gesundheitsamte, xvii, 1900, p. 568.
[13] Zeitschrift fur Hygiene und Infectionskrankheiten, xxii, p. 351.
[14] Zeitschrift fur öffentliche Chemie, 1901, p. 324.
[15] Zeitschrift fur Hygiene und Infectionskrankheiten, xli, p. 123.
[16] Deutsche medicinische Wochenschrift, 1902, p. 265.



FIG. 1.

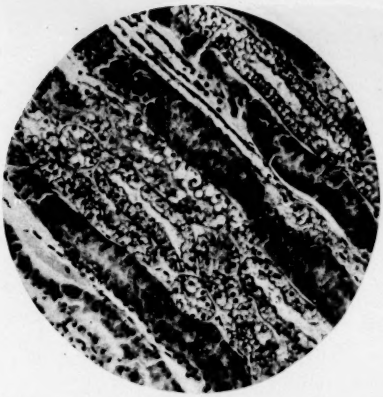


FIG. 2.

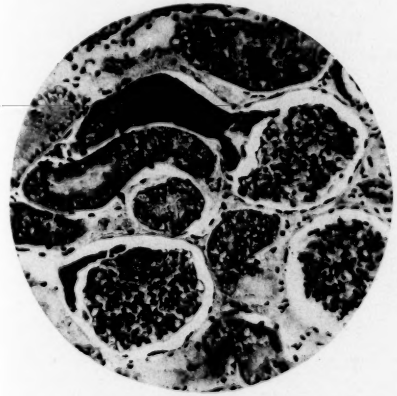


FIG. 3.

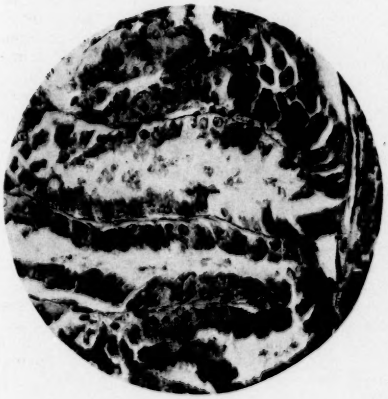


FIG. 4.

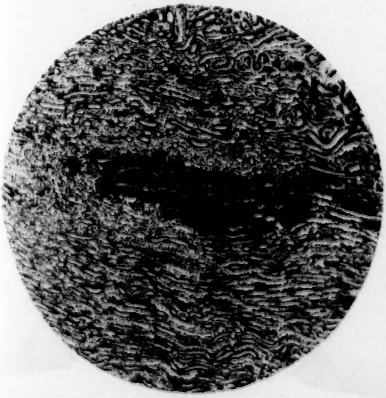


FIG. 5.



FIG. 6.

perfectly normal, with the exception of the kidneys, which in all but the control cat, showed marked changes. Following are the findings as to this organ:

Cat No. 1. (*Control.*) Kidney. The epithelium of the convoluted tubules contains fat, but in small amounts as compared with the other five, and there are no accompanying degenerative changes.

Cat No. 2. Kidney hyperemic, especially in intermediary zone. Vessels of glomeruli dilated. All tubules of labyrinth extremely fatty. Tubules of medullary rays give evidence of marked cloudy swelling. The cells of the collecting tubules are irregular and dissociated and much larger than normal. They stain deeply and the nuclei are shrunken and irregular in places. These tubules contain collections of fibrin in the shape of small needles, which sometimes are collected in the lumen of the tubule, sometimes between and sometimes enmeshing groups of cells.

Cat No. 3. Kidney. Vessels injected. Bowman's capsules are somewhat dilated and contain collections of large fatty epithelial cells, which have been pushed in from the neighboring tubule. These are not attached to the capsule and are dissociated one from another. The epithelium of the convoluted tubules is loaded with fat. In places, this is accompanied by considerable degeneration of the cells. There is marked cloudy swelling of the tubules of the medullary rays, *i. e.*, Henle's loop, and more marked of the collecting tubules. On account of the increased thickness of the epithelium, the tubules are larger, with smaller lumina. The epithelium is tall, columnar, due probably to proliferative changes. The cells stain deeply, are dissociated, and in places are desquamated in masses. Nearly all of these tubules contain masses of fibrin in the lumen or enmeshing cells.

Cat No. 4. Kidney. A few Bowman's capsules contain desquamated epithelium from the adjoining tubule. The convoluted tubules are very fatty and there is marked cloudy swelling of the tubules of the medullary rays, identical with the changes found in the preceding cases. In addition, there is infiltration of areas of interstitial tissue with lymphoid and plasma cells. These foci are elongated and extend parallel to the tubules. The lesions are most numerous near the line of junction of the medulla and cortex, but some are situated wholly in the medulla and others extend into the cortex almost to the capsule in the kidney. These lesions bear no relation to the larger blood vessels and are probably secondary to parenchymatous changes.

Cat No. 5. Kidney. The convoluted tubules are extremely fatty. Tubules of the medullary rays show marked cloudy swelling, as in the other cases. Interstitial tissue is not affected.

Cat No. 6. Kidney. The convoluted tubules are very fatty. Cloudy swelling is marked in the medullary rays, especially in the first portion of the collecting tubules (the so-called intercalated tubules). In these the cells are desquamated, swollen and irregular, and the tubules contain fibrin.

DESCRIPTION OF PLATE.

No. 1. Normal kidney of cat, multiplied 175 diameters. In the normal kidney there is a slight amount of fat in the cells, shown by the vacuolation in the epithelium. (From Cat No. 1. Control.)

No. 2. Kidney of cat with intense fatty infiltration of tubules in the pyramid. Multiplied 175 diameters. (From Cat No. 5.)

No. 3. Kidney of cat. Degeneration of proximal convoluted tubules. In most of the tubules there is an increased amount of fat, shown by the vacuolation, with separation of cells from their attachment. The attached masses of cells press into the capsular space of the glomerulus. Multiplied 175 diameters. (From Cat No. 3.)

No. 4. Kidney of cat. Degeneration and partial desquamation of cells of intercalated tubules, with granular detritus in lumen. Multiplied 250 diameters. (From Cat No. 2.)

No. 5. Kidney of cat. Focus of lymphoid cellular infiltration in pyramid. Multiplied 60 diameters. (From Cat No. 4.)

No. 6. Spleen of cat. Large foci of epithelioid cells and slight necrosis of follicles.

NOTES ON RADIUM.

Production of the Gamma Rays from the Beta Rays of Radium; Use of Radium in Some Diseases of the Eye.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

Physicists now consider that the beta rays from radium correspond to the cathode rays and the gamma to the x-rays. The cathode rays strike the platinum anode of a vacuum tube and x-rays are produced. It seems, therefore, reasonable to suppose that if a plate of heavy metal were put in the path of the beta rays, not only would a part of them be reflected, but a portion also would be converted into gamma rays. In order to test this supposition I made last winter the following experiment:

A mass of lead, L, 6 inches (15 cm.) thick from end to end, was placed on the apparatus as shown in Fig. 1, so that practically no rays from the specimen of 50 mgm. of pure radium bromide, R, could reach the barium platinocyanide screen S.

The radium R, in a metal box with a mica cover, was wrapped in black paper and so placed that the rays emitted issued at right angles to the long axis of the apparatus and toward a lead plate, P, standing at an angle of 45° to the rays. Under these conditions, when the room was dark, the screen of barium platinocyanide S, which was 48 cm. from the middle of the lead plate P and the radium R, was brightly illuminated. Second: If, however, a plate of aluminum, A (see Fig. 2), $\frac{3}{16}$ inch ($\frac{1}{2}$ cm.) thick (this thickness of aluminum absorbs all the beta rays, but the gamma rays pass through), was interposed between the plate P and the fluorescent screen S, most of the light was shut off from the screen S.

Third: With the aluminum plate A still placed as in Fig. 2, the fluorescent screen S was moved toward the plate P until the screen S seemed to be as bright as when the apparatus was arranged as in Fig. 1, that is, when no aluminum plate was interposed between S and P. Under these conditions, the scale on the apparatus showed that screen S was 25 cm. distant from the center of plate P. Fourth: If the plate of aluminum A

was removed from the position shown in Fig. 2, and placed between the radium R and the lead plate P, the fluorescent screen S was not illuminated at all.

The different results observed on the fluorescent screen S, with the different positions of the aluminum plate A or its removal altogether, prove that gamma rays were produced when the beta rays struck the lead plate P. Let us go over the process, step by step. If the aluminum plate A is placed between the radium R and the lead plate P, the fluorescent screen S is dark, because the beta rays are absorbed by this thickness of aluminum before they can reach plate P. That is to say, when the beta rays were prevented from reaching plate P, no gamma rays were produced, and likewise, of course, there were no beta rays at P to be reflected on to screen S. (The alpha rays need not be considered, as they are absorbed by the mica covering the radium.) To make this clear, let us remove the aluminum plate A from its position between R and P and place it, as once before, between S and P. (See Fig. 2.) By thus changing the place of the screen A, we have allowed the beta rays to strike the lead plate P, and as a result the screen S is illuminated, but only faintly so, because though the beta rays have reached the lead plate P, owing to the removal of the plate A from between R and P, they are unable to reach the screen S, because the aluminum plate A has now been placed in their path between S and P. (See Fig. 2.) Therefore, the illumination observed in this case is due to the gamma rays that were produced when the beta rays struck the lead plate P; the remaining beta rays that were reflected as such from plate P being absorbed by the aluminum plate A on their way to screen S. Now let us remove the aluminum plate A altogether. (See Fig. 1.) The screen S, under these circumstances, is brightly illuminated, because the beta rays, no longer being absorbed as in the previous instance, have added their brilliancy to the fainter light from the gamma rays.

The brightness of the fluorescent screen S, when illuminated by the gamma rays alone, seemed in one instance, as we have seen, equal to the amount of brightness observed when screen S was struck by both the beta and the gamma

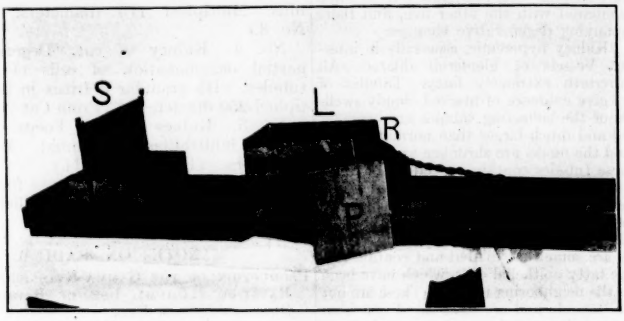


FIG. 1 shows a base of wood with a centimeter scale attached to its side. On its upper surface is a block of wood, which may be slid lengthwise, and which carries a screen of barium platinocyanide, S. Another block supports a mass of lead, L, and 50 mgm. of pure radium bromide, R. Standing at an angle of 45° with the long axis of the apparatus is a lead plate, P.

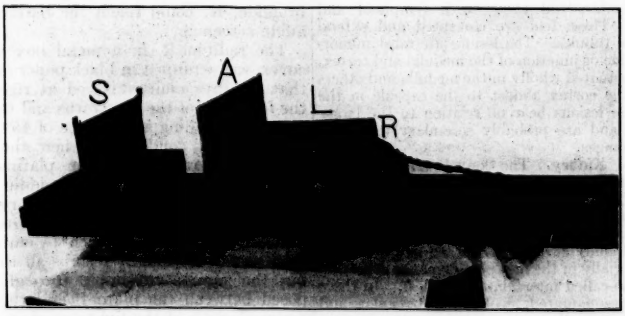


FIG. 2 is the same as FIG. 1, with the addition of the aluminum plate A.

rays. This will be readily understood when we remember that the amount of light diminishes as the square of the distance, and that the brightness resulting from the gamma rays alone, in this case, was due to the fact that the fluorescent screen S was moved from the position which it held, when struck by the beta and gamma rays, of 48 cm. distance from the centre of the lead plate P to within 25 cm. distance from the center of plate P.

The following experiment that I have made with radium will also be of interest, I think: It is well known that when strong radium is held near the closed eyes of an individual who has been for some time in a dark room it causes a well marked sensation of light. I placed a specimen of 50 mgm. of pure radium near one of my eyes, and this sensation of light was produced. I then interposed a plate of aluminum that was thick enough to absorb all the beta rays, but allowed the gamma rays to pass. Under these circumstances the sensation of light produced in my eye was the same as before the interposition of the plate of aluminum. This experiment shows that the sensation of light in the closed eye can be caused by the gamma rays alone.

The beta rays seem likely to prove a convenient and useful remedy in certain diseases of the eye, particularly those which have not yielded to other methods of treatment. Among these I may mention trachoma, a very obstinate and difficult disease to treat, and one that requires many months or even one or two years, — opacity of the cornea, and inflammatory conditions of the neighboring parts. Four or five years ago I used the x-rays in some diseases of the eye with good effect, and recently I have applied the rays from radium.

In trachoma I have found that good results have followed promptly from exposures of two or three minutes to 50 mgm. of pure radium bromide, given at first once a week and later twice a week. The radium was held about ½ cm. from the everted lid, or was placed even nearer to the closed lid opposite the diseased area.

A very good example of the usefulness of the radium rays in opacity of the cornea and inflammation of the neighboring parts is afforded in a case brought to me by my brother, Dr. Charles H. Williams. The patient was a woman of middle age, who was suffering from a rather severe uveitis and an opacity of the cornea, which involved the lower and outer quadrant, and was so great that through portions of it the iris could not be distinguished. This opacity also included to some extent the central portion of the cornea. At this time the vision was less than 0.1. As the patient had only one eye, I felt that I was taking a good deal of responsibility in deciding either to use the radium or to decline to use it, but I determined on the former course, as Dr. Williams told me that everything that had offered hope of relief had been tried without success; therefore the use of radium seemed the only chance of saving the patient from blindness. My experience in employing radium was at this time sufficient to make me confident that I could use it with such ca e as to do no harm.

The exposures were made at intervals of three to seven days, the lids being held apart and the radium placed first about ½ cm. from the cornea, later about 1 cm., and still later 2 to 3 cm. Slight improvement was noticeable within two weeks, and at the end of ten weeks the improvement was marked; the inflammation had decreased throughout, the opacity of the whole cornea had diminished greatly, and the vision was 0.4. The patient at this writing has a vision of more than 0.5, and can read ordinary print. I hope that Dr. Williams will report fully on this case.

It is hardly necessary to mention the great convenience of using radium as compared with the x-rays. The output of the rays from radium is uniform, and the rays may be easily applied. The greatest care should be employed when diseases of the lids or eyes are treated with this powerful agent.

The use of radium in the fluorometer, an instrument for estimating the output of x-rays of a given vacuum tube, I have already described in the third edition of "The Roentgen Rays in Medicine and Surgery," pages 640–642.

Radium is also of use as a test for determining whether or not the eyes of the practitioner are in a suitable condition for making fluoroscopic examinations. This test can be carried out by means of the spinthariscope, which contains a small amount of radium. If the scintillations appear bright to the practitioner, his eyes are ready for use; if dull, he must wait for a while longer in the dark room before attempting to make a fluoroscopic examination.

VAGINAL SECTION IN THE TREATMENT OF EXTRA-UTERINE PREGNANCY.*

BY FRANK A. HIGGINS, M.D., BOSTON.

In reporting these few cases of extra-uterine pregnancy treated by vaginal section, it is not my intention to appear in any way as an advocate of the vaginal operation for this condition. But the experience in these cases has been somewhat unusual, to me at least, has shown certain difficulties and contingencies in the way of treatment which had not been met with before, and also reveals certain errors of diagnosis which are not uncommon, and which serve mainly to emphasize the frequently repeated statement that a correct diagnosis of extra-uterine pregnancy is often impossible. It has been the usual experience, however, that other conditions in the pelvis are more often taken for extra-uterine pregnancy than that extra-uterine pregnancy is overlooked.

There are still a few men who advocate and perform the vaginal operation for nearly every abnormal condition in the pelvis. Yet I believe

* Read at the meeting of the Obstetrical Society of Boston, January 19, 1904.

it is now pretty generally recognized that in the main the advantages of vaginal section are confined to those cases in which there is an acute collection of pus in the pelvis, the removal or drainage of which is necessary, which is of comparatively easy access from below, and where an operation by the abdominal route would result in an incomplete operation with drainage, and also in considerable danger of infection of the general peritoneal cavity. In such cases the collection of pus is usually quickly and readily reached and evacuated by means of a posterior vaginal incision.

By the vaginal operation for pus accumulations, there is only slight hemorrhage and rarely any serious amount of shock. With care there is little danger of infecting the general peritoneal cavity, and the drainage is thorough if the incision is ample. The convalescence also is usually rapid, but of course largely dependent upon the general condition of the patient previous to operation. These are, in brief, the chief conditions which favor the vaginal operation for pus collections in the pelvis, but on the other hand the operation is often an incomplete one and it may be necessary to open the abdomen later for relief of pain or other symptoms.

Vaginal operation or exploration in extra-uterine pregnancy has been advocated chiefly for diagnosis in doubtful cases by means of a small puncture, and also for those cases in which the hemorrhage has not been free or severe and has been confined to the pelvic cavity or other limits. It is to be presumed that few men, if any, would advocate a vaginal operation for a condition involving free hemorrhage into the peritoneal cavity, because of the manifest difficulties in reaching and controlling the source of the hemorrhage, and also because of the practical impossibility of draining into the vagina free blood which has escaped high into the abdomen.

With respect to diagnosis, so much has already been written that there is nothing new of value which can be said at present. Frequently abnormal conditions of the tubes and ovaries cause symptoms strongly pointing to extra-uterine pregnancy before rupture. Conditions in the pelvis giving rise to a mass with an acute pelvic tenderness, and also in many cases showing some evidence of slight, general peritonitis, which are accompanied by irregularities in the menstrual flow, are the ones which are most likely to occasion difficulties in diagnosis in differentiating for extra-uterine pregnancy.

Within the last few months, the writer has had three cases of extra-uterine pregnancy operated upon in the acute stage in the presence of profound shock, but in the absence of the other typical symptoms of ruptured extra-uterine pregnancy.

These cases, briefly reported, are as follows:

The first patient was seen May 14, 1903. A. A., thirty-one years; married seven years; three normal labors; the last menstrual period occurred March 31, about six weeks before. Six days ago she began to flow and continued flowing a little but only when passing water. Two days later began to have pains resembling labor pains, and these have continued ever since intermittently. Four days ago her pain becoming so severe, she sent for a physician who etherized her and took "the child away," that is, I suppose, emptied the uterus probably by curettage. Since then, her abdomen has become distended, she has had several slight chills and has vomited constantly for three days. Bowels have moved once, and then from an enema.

The hospital records say that the patient looks very sick, emaciated and extremely pallid; marked anemia of mucous membranes; eyes normal; tongue dry, white coat; pulse rapid, regular, of poor volume and tension; heart and lungs negative; abdomen markedly distended, tympanitic and moderately tender to pressure over all portions.

The writer saw the patient shortly after her entrance to the hospital. There was no question as to her extreme condition. There was constant and most severe vomiting. Abdominal examination gave no more evidence than is stated above. On vaginal examination, there was general pelvic tenderness with induration and bogginess of the vaginal vault, especially posterior. In view of the history of curettage four days previous, it seemed probable that we had to do with a case of acute pelvic infection with an abscess following the operation, and with some extension into the general peritoneal cavity. A vaginal section with drainage which could be rapidly performed appeared to offer the best hope of relief, but even this was believed to be very slight in the patient's extreme condition.

A transverse incision was made posteriorly close to uterus, opening directly into the peritoneal cavity, and a large amount of dark fluid blood immediately escaped. It was found possible without much difficulty to forcibly retroflex the uterus into the vagina through the incision, and a mass consisting of tube distended with blood clot attached to the ovary was brought into view and shelled out from the right side. The tube and ovary were ligated en masse and removed. The hemorrhage apparently being controlled, the uterus was replaced and the pelvis irrigated and iodoform gauze drainage inserted. The operation was short, being completed in about ten minutes and practically under primary anesthesia. The patient was in a critical state for some time after the operation, but slowly gained in general condition, and the abdominal distention gradually subsided.

The patient improved steadily for about two weeks when suddenly she developed a high temperature with abdominal pain and tenderness, and a mass tender to palpation could be felt about midway in the abdomen between the pubes and the umbilicus. The abdomen was opened at once with a median incision into a cavity containing a considerable amount of old bloody fluid, with clots and foul smelling débris. Connecting with this cavity was a fistulous opening into the small intestine. This cavity was thoroughly sponged and washed out with hot salt solution and drained with iodoform gauze wicks. The patient made a good recovery from this second operation, and was discharged in about two months after her entrance, the fecal fistula eventually healing without operative closure.

Before the vaginal operation, the question of the possibility of extra-uterine pregnancy was considered, but it was given up in view of the history of probable abortion and curettage. It was plain after the operation, however, that the case was undoubtedly a typical one of ruptured

extra-uterine pregnancy, and it was believed that if the patient had been seen at the onset of her symptoms, and a good history could have been obtained, there is little doubt but what we should have performed an abdominal section primarily. But taking into account the fact that the patient had been etherized and curetted for a supposed abortion four days before, it seemed natural to ascribe her symptoms to a pelvic infection originating in the uterus. I was also convinced at the time that she would not be able to withstand an abdominal operation, so extreme was her condition, but in looking back at the case and comparing her condition with other patients operated upon for extra-uterine pregnancy, I am not as strong in my opinion on this point, as I was at that time. Many very desperate cases recover after abdominal section if the hemorrhage is quickly stopped, and the free blood evacuated from the peritoneal cavity.

It was a simple matter in this case to retroflex the uterus into the vagina, to ligate off the bleeding tube and remove it, and then replace the uterus and insert gauze drains around the stump. But the so-called toilet of the peritoneum cannot be effectively accomplished from below, and free blood may remain in the abdominal cavity as a source of trouble later, as occurred in this case. The collection of blood high in the abdominal cavity became infected possibly from the vaginal drainage, or probably from the bowels as they were found to be connected by a fecal fistula which had evidently ulcerated through.

As the patient ultimately recovered, I do not think it can be said that the vaginal operation was in any way detrimental to her, and it may be considered a successful case as she might not have recovered had the abdomen been opened when she was first seen, so critical was her condition.

This was the only case in which I was able to bring the uterus down into the vagina in the operation, in the others it apparently being firmly fixed forward. It is interesting to know, however, that this procedure in no way interfered with the return and maintenance of the uterus in normal position, as on a recent examination of the patient, about eight months after operation, the uterus was found in good position anterior, and the patient well and free from symptoms.

The second case, F. B., entered the hospital Sept. 28, 1903. Twenty-four years; married two years; one induced abortion. Two days before entrance, she was taken suddenly with very severe pains in the lower portion of the abdomen, accompanied by nausea and vomiting. Patient believed she had an accidental miscarriage a few weeks earlier when about six weeks pregnant. There had been constant flowing necessitating two or three napkins a day for about four weeks, or since the time of her supposed miscarriage. Nausea and vomiting for three weeks with more or less fever and chills.

The patient appeared to be very sick, there was intense pallor of face and her features were pinched. The pulse very rapid, irregular and scarcely perceptible at the wrist. Lungs and heart negative. Abdomen not much distended, somewhat rigid and very tender, especially on the right where a mass could be felt above the groin, through the abdominal wall, about the size of a navel orange. A boggy, indurated mass on the right could also be felt on vaginal examination. Leucocytosis 23,600. The probable diagnosis was made of an acute pyosalpinx, and a vaginal operation decided upon.

Under light anesthesia in the Pean position, the uterus was curetted with very little material being obtained. The usual incision was made behind the cervix, enlarged with the scissors, and dissection carried on with fingers. The large mass described above was entered and considerable blood evacuated. The ruptured sack was then clamped at both ends and clamps left in position, as the mass could not be quickly shelled out and there appeared to be some recent hemorrhage. The cavity was left tightly packed with iodoform gauze. Salt solution under breasts was given during the operation, as well as other stimulants, and the patient put to bed immediately and treated for severe shock. The pulse which at the end of the operation was 160, dropped under this treatment to 140 and improved in quality. Patient passed a fairly comfortable night, the pulse coming to 120 finally, and the temperature slightly above normal. Her color was much better early the next day, but towards night, however, the abdomen became distended and she complained of considerable pain and vomiting began, and there was marked palor.

Accordingly as it seemed evident that hemorrhage had begun again, the abdomen was opened by a short median incision, and the peritoneal cavity found filled with blood. There was fresh hemorrhage from the right tube which was tied off and removed. The intestines were found to be somewhat injected with evidence of beginning peritonitis. The abdominal cavity was thoroughly flushed out with hot saline solution, and about 50 cm. of a saturated solution of Epsom salts were injected directly into the intestine. Wick drainage and mass sutures.

Patient made a very good recovery from ether, and for twenty-four hours did well, when she ceased to gain and began to go to pieces and died forty-eight hours after the second operation.

This second case illustrates the impossibility in most cases of controlling hemorrhage from below even when its origin is in the pelvis, as well as the dangers and disadvantages of the vaginal operation. In certain cases it may be possible to accomplish it, but one has no assurance of being able to do so, and the danger of secondary hemorrhage is undoubtedly much greater than when the hemorrhage is controlled from above. It is also evident from this case that even in the presence of a definite mass in one side, we cannot by any means be sure that hemorrhage is not still going on, and that we have a hematoma which is walled off from the general peritoneal cavity. It seems probable now that this patient would have stood a very good chance of recovery had the abdomen been opened at the first operation, and the hemorrhage controlled from above.

Case III. H. V. H., entered hospital Nov. 17, 1903. Thirty-six years; married eighteen years; six pregnancies; last, ten years previous. Nearly constant flowing for one month, accompanied by slight general abdominal pain. Two days ago was taken with very

severe general abdominal pain and patient thinks she fainted. Pain is still very severe and is apparently becoming localized in the left lower quadrant. Considerable vomiting.

Appeared very sick; pulse rapid, regular, of fair volume and tension; dyspnea and pallor; heart and lungs negative. Abdomen not distended but lax, although there was considerable tenderness on pressure over entire surface, but especially over lower portions. In left inguinal region a distinct mass could be outlined, somewhat tender to palpate. She was given salt solution, strychnine, and a shock enema to improve her condition. Leucocytosis 26,200. Vaginal examination showed cervix pushed forward by a large bulging mass behind the uterus extending outward towards the left side. The patient rallied somewhat after a few hours from her profound shock, and vaginal section under light anesthesia was performed. A cavity was opened, walled off from the abdomen, and containing a large amount of old clotted blood. There was no fresh bleeding, the cavity was irrigated with salt solution and left packed with iodoform gauze. The patient rallied quickly and eventually made a good recovery.

This last case illustrates very well, I believe, a type of case in which if we could be absolutely sure of the condition in the pelvis before operation, the vaginal operation would be satisfactory and be safer and simpler than an abdominal operation. That this cannot always be determined beforehand is shown by the second case. The patient was undoubtedly suffering from severe shock as the result of hemorrhage, probably into the broad ligament. Such a cavity after being evacuated of its contents can be packed and the hemorrhage controlled in that way very well from below.

It is rather difficult to see just why there should be so much shock as there was in this case without free hemorrhage into the peritoneal cavity, or without large loss of blood, but we know that we do sometimes get practically the same amount of shock in either condition. I have had several cases of pelvic hematocele, one of which was in rather an acute condition, which have been opened by vaginal section. But as in none of these cases was it possible to determine positively that the condition arose from an ectopic pregnancy, they have not been included in this paper. The experience gained in these three cases is of course not large, but it is quite enough even with two recoveries in three desperate cases, to convince me that the abdominal route is by far the safer and more satisfactory method when once the diagnosis is made, even though it seems scarcely possible for the patient to undergo the shock of a laparotomy. The time required is a little more by the abdomen but the results in the control of hemorrhage are much more certain.

I am not sure, however, that if one, in a mistake of diagnosis, opens by vaginal section into a ruptured extra-uterine pregnancy, he should always immediate y follow it up by an abdominal operation. I should say not if he feels certain that he has been able to control the hemorrhage, or unless the patient is in unusually good condition, or later she shows evidence of continued hemorrhage.

We must, I believe, continually keep in mind the possibility of extra-uterine pregnancy in a woman exposed to pregnancy, and in the presence of severe abdominal pain and tenderness, a rapid pulse, vomiting, or other peritoneal symptoms, a rupture of a pregnant tube can never be absolutely excluded.

Clinical Department.

CLINICAL REPORT FROM THE WARD FOR SKIN DISEASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

A CASE OF CUTANEOUS TUBERCULOSIS OF REMARKABLE EXTENT. DERMATITIS HERPETIFORMIS OF TWO YEARS' DURATION. ULCERATED NEVUS VASCULARIS.

BY JOHN T. BOWEN, M.D., BOSTON.

Physician for Diseases of the Skin, Massachusetts General Hospital; Assistant Professor of Dermatology, Harvard University.

SINCE the opening of the ward for skin diseases, in October, 1903, many interesting cases have been received and treated. The following are among those observed during October, November and December:

A CASE OF CUTANEOUS TUBERCULOSIS OF REMARKABLE EXTENT.

The patient is a man of thirty-two, born in Massachusetts, who has nothing of importance in his family history, with the exception that his mother died with pleurisy. He has one brother and three sisters living and well. When eight years old, he had lung fever, and was ill three months, but recovered perfectly. When ten years old, a small nodule appeared on the nose, on the right side, which steadily spread. This was followed by swelling of the nose, and by similar small nodules on the lower lip. At this time the diagnosis of lupus was made, and he came to the Massachusetts General Hospital, where the lesions on the lower lip were curetted. From this time onward the lesions constantly extended, spreading outward over his face. When fifteen years of age, the middle finger of his right hand swelled, became sore, stiff, and then contracted. The next lesion to appear was on the right buttock, a little later than the finger. Next, the front of the upper arm was attacked, and this was followed by a lesion at the flexure of the elbow, which healed spontaneously.

When admitted to the ward, on Oct. 10, his face from the eyebrows to the middle of the under part of the chin, was a mass of scar tissue of a pale red, clear in the center, but with scattered cutaneous nodules. The lower part of the nose was entirely gone, exposing the nasal septum, and the lips tightly drawn and contracted, with some crusted lesions at the edges. There was marked ectropion, especially of the right eye. There were extensive infiltrations of tuberculous tissue over the sternum, right upper arm, right wrist, left upper arm, and the outer and inner sides of both thighs and buttocks. Intermixed with these more or less active lesions was a large amount of cicatricial tissue. The hands were greatly distorted, anchylosed, and presented a striking resemblance to the main-en-griffe of leprosy.

This man had visited various parts of Europe in search of a cure, and had been an inmate of several of the better known dermatological institutions. His

general health had always been good. During his stay in the hospital an epithelioma has developed upon the right cheek near the angle of the mouth, which thus far has proved rebellious to the x-ray treatment which has been of much value for many of the tuberculous lesions. Different parts of his body have been treated by the Finsen light method and by the high-frequency current.

DERMATITIS HERPETIFORMIS OF TWO YEARS' DURATION.

This patient is a man of thirty, born in England, and first affected in March, 1902. The disease first made its appearance on the scalp in the form of blisters, which rapidly followed one another. In August of that year, the bullæ were present on the arms, ankles and also the toes; and afterwards the eruption spread rapidly to the back. This patient was seen by me in 1902. At that time his body was pretty well covered with a purely bullous eruption, grouped in places, as about the mouth and nose and in the groin. The patient stated that he had been unable to work, and at one time had been hardly able to move on account of the extent of the eruption. Very little multiformity was seen, the lesions being pure bullæ and vesicles. There were large areas of erythema and pigmentation, which represented the areas that had been affected by the disease. At one period, the affection had almost disappeared, and the patient thought that he was surely going to recover, but another attack quickly followed.

When admitted to the ward on Oct. 9, the eruption was situated upon the neck, where confluent clusters of vesicles and bullæ on an erythematous base were seen. Vesicles were also clustered about the mouth; the scalp was crusted, with the appearance of new vesicles; the abdomen was free. There were numerous bullous lesions on the back, more or less grouped. Mingled with crusts and erythema, there were very numerous pigment stains over the entire body. Upon the lower limbs, the affection was grouped about the genitals and the inner surface of the thighs, consisting of large and small closely clustered vesicles and bullæ. In general, the type was that of medium sized bullæ. On the thighs and buttocks the lesions are very numerous, so that sitting down is very painful.

This patient has never suffered in his general health; in fact, he has gained weight since the affection began two years ago. No abnormal signs were found on physical examination. Examination of the blood showed polynuclear leucocytes, 63%; lymphocytes, 19$\frac{5}{10}$%; eosinophiles, 17$\frac{5}{10}$%; white blood corpuscles, 25,500. An examination of the contents of the bullæ gave polynuclear leucocytes, 46; lymphocytes, 4; eosinophiles, 50.

The patient remained in the ward until Jan. 21, 1904, when he was discharged, relieved. During this time, the skin affection went through various phases. At first new lesions were constantly appearing, generally over the parts mentioned above. It was noted that there was a marked tendency to grouping and that the bullæ, especially the larger ones, had an angular outline. He developed, also, a few lesions on the mucous membrane of the mouth. The anterior surface of the trunk remained pretty free from the lesions, while the back was at times almost completely covered. The groins continued to be a very favorite site for the appearance of the lesions.

Various methods of treatment were tried, both internally and externally. The x-ray seemed to have no effect either on the duration of existing lesions or on the appearance of new ones. Burow's solution, a mixture of acetate of lead and alum, was of much value in combating the odor of the macerated epidermis and as a soothing dressing. It was thought at one time that arsenic was exerting a somewhat controlling effect, but the appearance of an active new outbreak dispelled these illusions. Quinine, which has had an effect in certain cases of this character, was tried for a considerable time without result. When discharged, he had only a few scattered lesions over the areas that had been generally affected before. As the eruption became less, the percentage of eosinophiles diminished, so that there was only about 5% when he left.

On the ninth of March he was readmitted with a fresh attack. Up to three days ago the affection had been confined to the chin. Now it has appeared in both groins, extending over the perineum. There are also lesions on the back and on the lower limbs. The patient is still in the hospital, repeating his experience of three months before. There has never been very marked pruritus, although he has complained of some at times.

The affection must be classified with dermatitis herpetiformis on account of its recurrence, its grouping, and the general well-being of the patient. The multiformity was not marked in this case. Apart from some few areas of erythema, the affection has been vesicular and bullous or pustular from the start. It will be noted, also, that the itching is not severe.

ULCERATED NEVUS VASCULARIS.

This occurred in an infant of eleven months, of foreign parentage, with no obtainable history except that she had been born with a birth mark of the left cheek, which had grown rapidly with the growth of the child, and had become ulcerated three months ago. On examination the infant, who was poorly nourished, presented over the left cheek an area of about four by one and one-half inches deeply ulcerated, with a thin secretion. Surrounding this ulcerated area, there was a small area of angiomatous tissue; but most of the tumor had become ulcerated. The case was interesting on account of its unexpectedly favorable termination. The child being poorly nourished and the ulceration extending rapidly when she was admitted, it could hardly be expected that the process would be stopped. Undoubtedly the improved hygienic conditions had much to do with the continuous improvement that took place. It was treated locally with sulphonapthol and myrrh wash and a borated ointment. The patient was admitted on Dec. 7, 1903, and on Jan. 1, 1904, the ulcer had practically healed, leaving a red cicatrix.

THREE CASES OF HEMORRHAGIC DISEASE OF THE NEW-BORN.

BY HENRY B. STEVENS, M.D., WEST ROXBURY, MASS.

THE following brief reports of cases are of some interest:

CASE I. C. B., was born April 8, 1901. First child; normal delivery; O. D. P., male.

On the second day child vomited small amount of bloody matter of a dark color, followed after a while by more of same nature and accompanied by frequent tar-colored stools. Moderate fever. A diagnosis of hemorrhagic disease of the new-born was made. Dr. J. L. Morse was called in consultation. Supporting and stimulating treatment advised, and the child was kept perfectly quiet in its basket, fed with diluted breast milk by dropper and given small doses of

brandy. Continued to vomit bloody matter and tar-colored stools kept up. Marked yellowish pallor developed with extreme prostation. Child gradually failed and died on April 11.

CASE II. A. O., was born Jan. 5, 1902, in immediate neighborhood of Case I, the two houses being within stone's throw. Third child; normal delivery; female.

Case presented almost identical symptoms with Case I, the hemorrhage commencing after about thirty-six hours.

Gelatine, moderately thin solution in water in teaspoonful doses was fed freely to the baby, who took it readily. Dialized iron and Fl. Ex. Ergot in drop doses were given every hour alternately.

After a few doses of gelatine the hemorrhage from the bowel, which had been alarming, began to abate while the vomiting stopped entirely after the first dose. The characteristic pallor became marked, prostration and emaciation were extreme, so that death seemed imminent, but the treatment was kept up faithfully and the child lived.

CASE III. G. B., brother of Case I, was born June 19, 1902, in same house and room. Normal delivery.

A few hours after birth, with the idea of possibly forestalling trouble, gelatine was given in teaspoonful doses about once in three hours. Baby took it well. After about forty-eight hours there was a bloody movement, followed shortly by another. Gelatine was increased. Baby had in all but three movements of blood, did not vomit bloody matter nor show any appreciable effect from the hemorrhage. Gained and developed as a normal baby. Dr. C. W. Townsend saw the case in consultation.

All three children were well developed and nourished when born. Family history was negative. There was no sepsis in any of the cases, no bleeding from cords or evidence of hemorrhage other than as stated.

Three cases are hardly enough to build theories upon; but perhaps the circumstance of three cases of a rather rare disease, occurring in one practice, in one neighborhood, all within fifteen months, may add weight to the theory already advanced that hemorrhagic disease of the newborn is of an acute infectious nature. Gelatine in these cases seemed to act almost as a specific. It was readily taken, well borne and certainly merits a trial.

Medical Progress.

THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND HAYWARD W. CUSHING, M.D.

(Continued from No. 20, p. 543.)

ON THE OCCURRENCE AND SIGNIFICANCE OF CUTANEOUS HYPERALGESIA IN APPENDICITIS.

VERY little attention seems to have been paid by surgeons to the subject of cutaneous tenderness in appendicitis, and in the more recent textbooks of surgery and monographs on appendicitis no mention is made of it. In order to discover the frequency with which this sign is present in appendicitis and to test the teaching that it disappears on perforation of the appendix, Mr. Sherren [15] undertook this research, hoping to find an additional guide to operation in appendicitis. For this purpose, during the time that he was surgical registrar at the London Hospital, he examined all the cases of appendicitis that were admitted to the hospital, as far as circumstances would permit. He based his observations entirely upon cases in which the notes were taken by himself and in which the diagnosis of appendicitis was confirmed by operation at which he was present. He has also included those cases of appendicitis operated on by himself since that time, as assistant surgeon to the hospital.

Two varieties of tenderness are met with in appendicitis — the superficial, or cutaneous hyperalgesia, and the deep. The laws which govern the appearance and distribution of deep tenderness in connection with affections of the peritoneum have been worked out by Head. Sherren's observations confirm the statements of Head in every particular with regard to the appearance of this form of tenderness as a consequence of diseases of the appendix. He confines his attention to the conditions associated with the appearance of cutaneous hyperalgesia. Cutaneous hyperalgesia is tested by gently pinching or stroking the skin, beginning, if possible, in an area which is not tender and working towards the suspected tender area and so marking out its boundaries. Care is necessary, in order to avoid bringing out any deep tenderness which may be present. The skin only must be stimulated and all pressure on deeper structures avoided. In appendicitis, cutaneous hyperalgesia varies from a complete band extending on the right side from the middle line below the umbilicus in front to the lumbar spines behind, down to a small circular spot a little above the middle point between the umbilicus and the anterior superior spine. This band corresponds to the eleventh dorsal area of Head. Very often the tenderness extends somewhat into the tenth dorsal area also and occasionally, but not often, into the twelfth dorsal area, sending a tongue-shaped process over the gluteal region. The width of the band is in an adult about three inches.

This wide area, however, is not the one that is most often present. The usual area is on the right side of the abdomen and of a triangular shape. So often is this triangular area present that Sherren is in the habit of describing it in his notes as the "appendix triangle" of cutaneous tenderness. This triangle is situated in the right iliac region. Its lower boundary reaches almost to Poupart's ligament, its inner almost to the middle line, and its apex is a little outside the anterior superior spine, sometimes extending to the mid-axillary line.

He fortunately has been able to watch cases in which the hyperalgesia diminished from the complete band to the small circular area and many cases in which the "appendix triangle" gradually disappeared, leaving the small circular spot. He never examined a case of cutaneous hyperalgesia in appendicitis in which the posterior area alone was present. Cutaneous tenderness in appendicitis is occasionally bilateral.

[15] London Lancet, Sept. 19, 1903, p. 816.

Mr. Sherren has had the opportunity of seeing two such cases, in both of which the hyperalgesia was most marked on the right side.

He has never yet seen a case in which the hyperalgesia was present on the left side alone. This hyperalgesia is probably present in the majority of cases of first attacks of appendicitis, but in the gangrenous type of the disease no such tenderness can be discovered when the patient comes under observation, and it is probable that this form of the disease does not lead to the conditions which can produce reflected pain and superficial tenderness. If a patient is progressing favorably the hyperalgesia clears as the other symptoms of the disease improve, rarely persisting in the first attack after the sixth or seventh day. In subsequent attacks, however, where a stricture has been produced as the result of the first attack, it may persist much longer and remain after all the other symptoms of the disease have disappeared.

This hyperalgesia accompanies the reflected pain due to the changes in the appendix in exactly the same way as the reflected pain produced by the diseases of the stomach or other parts of the intestinal tract may be associated with superficial tenderness. It may, however, persist after all pain has ceased, especially where the appendix has been inflamed previously. Like all visceral hyperalgesia it is caused by the close association between the nerves which conduct impulses from the appendix and those which conduct similar impulses from the skin to the same segments of the central nervous system. When the otherwise painless stimuli from the skin reach those segments of the central nervous system which are directly connected with the appendix the skin appears to be tender. If a peripheral nerve be inflamed the skin within its distribution may become tender. But the cutaneous tenderness seen in appendicitis is not due to inflammation of the nerve trunks as is sometimes seen in cases of pleurisy (Head). For it may occupy the territory of the posterior primary division as well as that of the anterior division of the nerve, and it is inconceivable that the former division could ever be directly affected in appendicitis, and it appears early in the disease while the inflammation is still limited to the appendix. The reason for the anterior area remaining longer than the posterior and often being the only one present seems to be anatomical and to depend on the comparatively greater importance of the anterior primary division of the dorsal nerves.

Cutaneous tenderness does not vary with the positon of the appendix and is the same whether the appendix is in its normal position, pointing into the pelvis, on the outer side of the cecum or curled up behind it. Mr. Sherren has seen it typically present in a case of appendicitis where the cecum was undescended. Here, although the cecum was in close relationship to the liver, the superficial tenderness occupied the usual band in the eleventh dorsal area. The stimulus necessary to call forth this reflected pain and cutaneous hyperalgesia seems to be that of tension and not of irritation of the nerve endings in the appendix by the inflammation. Head has already shown this to be true for other hollow viscera, particularly the heart. That the stimulus is one of tension is seen by the fact that with perforation or gangrene of the appendix the superficial tenderness completely disappears, even although the perforation be small and the remainder of the appendix not gangrenous. This could not be explained on the supposition that the stimulus is one of irritation, the result of inflammation.

It is anatomically possible for other portions of the lower intestinal tract to cause cutaneous hyperalgesia in a similar situation to that caused by the appendix and Head has recorded such cases. Sherren has examined all the cases of abdominal disease which have come under his notice in the surgical wards of the London Hospital and has never met with cutaneous hyperalgesia in other diseases of the intestinal tract from the duodenum downwards.

The cutaneous hyperalgesia met with in renal colic might be mistaken for that seen in appendicitis, but as a rule it is higher, is more widespread, and tends to pass down into the first lumbar area, and where an anterior area only is left it is over the margin of the bony thorax about the situation of the tenth and eleventh ribs. The areas met with occasionally in gallstones and gastric ulcer are too high to be mistaken for that of appendicitis, and in gastric ulcer is often present only on the left side. Inflammation of the uterine appendages may give rise to cutaneous hyperalgesia but its occurrence is rare and it is, as a rule, bilateral.

It is well known that pleurisy at the base may cause pain over the abdomen. Head states that "if a pleurisy is acute the intercostal trunks may become implicated in the inflammation and pain appear over their terminal distribution, exactly as pain appears in the little finger when the ulnar nerve is injured. Thus an acute pleurisy may cause pain over the abdomen or even the iliac fossa of the same side. This is not a visceral reflected pain, for it is only present over that portion of the nerve trunk distal to the inflammatory lesion and is not present over the back. It may occasionally be accompanied by superficial tenderness. But unlike the superficial tenderness that is associated with true visceral reflected pain the tenderness that may accompany a pleurisy is only present in front of (on the distal side of) the patch of pleural inflammation." But, in Sherren's experience, the pain of pleurisy referred to the right iliac fossa is rarely associated with superficial tenderness that could be mistaken for that of appendicitis. Barnard has recently drawn attention to the simulation of appendicitis by "pleuro-pneumonic disease."

As an aid in determining operation the disappearance of hyperalgesia is of the utmost importance. If well-marked superficial tenderness disappears without coincident amelioration of the general condition of the patient it is a sign of

perforation or gangrene of the appendix. Unfortunately, a large number of cases of appendicitis which come under the care of the surgeon are not seen when hyperalgesia is present. But the absence of hyperalgesia is as important an indication of operation as its disappearance. In cases such as these coming under observation usually about the third or fourth day, with the signs of appendicitis well marked, Mr. Sherren considers absence of hyperalgesia the determining factor in operation. In over twenty cases of early appendicitis without superficial tenderness on which he has operated, he has found perforation or gangrene in the appendix without exception.

Conclusions. — 1. Cutaneous hyperalgesia is probably present at some time during all first attacks of appendicitis, except perhaps in the fulminating type, and depends upon tension within the appendix. 2. It may be absent in attacks after the first, if the first attack was of sufficient severity to destroy nerve tissue in the wall of the appendix. 3. When present in attacks subsequent to the first it often persists long after all other signs of the disease have gone, owing to the tension within the appendix being kept up by the presence of a stricture. 4. It gradually disappears during convalescence as the other signs of the disease clear up. 5. Disappearance of cutaneous hyperalgesia without improvement in the general condition of the patient is a sign of perforation or gangrene of the appendix and should be a signal for immediate operation. 6. The presence of cutaneous hyperalgesia is no contra-indication to operation. Abscesses may form and general peritonitis may develop while it is present. 7. Its absence, on the other hand, is of great importance. Absence of cutaneous hyperalgesia, the patient coming under observation early in the first attack of appendicitis, is a sign of gangrene of the appendix unless the case is obviously a mild one and the patient is rapidly getting well. 8. Cutaneous hyperalgesia is, as a rule, absent in cases of abscess of the appendix. 9. The age of the appendix and the position of the appendix have no influence upon the cutaneous hyperalgesia. 10. It is occasionally of use as an aid to the diagnosis of appendicitis.

THE BEST METHOD OF DEALING WITH THE STUMP IN APPENDECTOMY.

Dr. Lilienthal[16] in an article on this subject emphasizes the following points: — He speaks in favor of treatment of the stump by ligation and cauterization. He claims from examination of specimens of appendices treated by ligature and from the results of his observations clinically, that the ligature cuts through the mucous membrane and destroys it at the point of constriction. In each case the submucous fibrous coat and the peritoneum were uncut and held firmly. In regard to cauterization, he recommends the application to the mucous lining of the stump of 95% carbolic acid, applied with the tip of a closed artery clamp. According to his observations the stump so ligated was found to be cast off with its ligature and only a smooth cicatrix on the surface of the cecum remained. He also notes that he has never found an adhesion in this location, no matter how numerous they were in other parts of the abdomen. He claims that the stump formed by ligation, as described, is cast off completely in six days and with it any temporary adhesion that may have formed disappears. He recommends this method after a satisfactory test of ten years' use in many hundred cases.

[16] Medical News, Nov. 28, 1903.

COLOPEXY IN TREATMENT OF RECTAL PROLAPSE.

The resection operation in extreme cases of rectal prolapse is not without danger, is followed at times by stricture formation at the suture line, and does not always produce a permanent cure. Colopexy is regarded as an operation far less dangerous and yielding good results. J. Roller, who has written an interesting article on this subject,[17] mentions the Eiselsberg operation which consists of suturing the sigmoid by its lower end to the parietal peritoneum through an incision in the left hypogastrium. But he has noticed that the adhesions thus formed were not very firm while the scar between the peritoneum and the surface uncovered by it showed unusual firmness. Taking this fact into consideration Roller has operated in two cases where he has sutured intentionally the sigmoid to the abdominal wall which was denuded of peritoneum. For the details of technique of these cases (in one of which an anastomosis between the colon and the pelvic portion of the sigmoid in addition to the parietal fixation was made) the reader is referred to the original article. The results were satisfactory in both cases.

THE TREATMENT OF ACUTE PERFORATION — PERITONITIS.

The treatment of acute peritonitis resulting from perforation due to typhoid ulceration and necrosis by laparotomy and the formation of an artificial anus has been discussed by Escher.[18] He reports three recoveries in four cases. The patients' ages ranged from eight to nineteen years. The operation was done in the end of the third or the beginning of the fourth week. The favorable results are attributed to the omission of the primary suture of the intestine, which shortens the operation, and the formation of a fecal fistula, which overcomes the obstruction to fecal circulation in the intestine. He considers that the suturing at the site of the perforation not only prolongs the operation and thus increases the risk to the patient but also favors the further development of the intestinal pariesis. It is only under special favorable circumstances completed. On the other hand the fixing to the abdominal wall of the diseased intestine by the above recommended operation and the packing off of the peritoneum with gauze tampons is the surest protection against danger from subsequent

[17] Deutsche Med. Wochenschr., 1903, no. 32.
[18] Mittheilungen a. d. Grenzgeb. der Med. und Chir., Bd. xi.

perforations. The healing of the intestinal ulcers is also favored by the temporary removal of the fecal contents of the intestine.

RECOVERY FROM TUBERCULOUS PERITONITIS.

H. W. Freund has described in a recent article [19] different stages in the healing process in cases of tuberculous serous, ulcerative, suppurative and adhesive peritonitis and illustrates each type by quoting cases. All of these three varieties he considers amenable to operative treatment. This relieves the abdomen of the presence of the effusion with or without its pathogenic germs and the intervention is followed by proliferation of connective tissue which destroys or encapsulates the morbid products. Mild cases may be treated conservatively but severe ones require surgical aid. In a series of fifteen cases he tries to emphasize the beneficial results obtained. In some the cure has persisted for years. Concomitant tuberculous lesions in pleura or lungs have healed with the healing peritoneum. Experiences of many surgeons to date show that 65% of these cases have been cured by operative treatment and 25% permanently for years to date.

RECURRENT RETROPERITONEAL LIPOMA.

Heinricius [20] reports two cases of this unusual neoplasm in which the disease recurred. The site of recurrence was at the site of the original tumor. The point of origin of such lipomata is in the depth of the retroperitoneal fat. The portion of the intestine with which they are found in contact is the ascending colon or the sigmoid flexure. In a majority of cases the tumor appears to have developed behind the cecum, or ascending colon, and pushes it forward before it or to the left side. In 1900 Heinricius collected (and described) thirty-five cases of the class of growth.

FIRST SUCCESSFUL LIGATION OF THE HEPATIC ARTERY FOR ANEURISM.

The result indicated by the above title is reported by Kehr.[21] After removing a distended gall bladder the hepatic artery, portal vein and common duct were isolated. Then after ligating the artery in two places and dividing it between the ligatures the sac was opened and emptied. This operation is reported to have been followed by an uneventful recovery. The difference between this satisfactory result and the results obtained by animal experimentation is thought to be due to the fact that in pathological cases the gradual progress of the disease gives an opportunity for the collateral circulation to be sufficiently established to permit the ligation of the main vessel.

THE RESULT OF LIGATION OF THE FEMORAL VEIN BELOW POUPART'S LIGAMENT.

Halberstædter [22] calls attention to the fact that while in some cases of ligation of the femoral vein close below Poupart's ligament this operation is not followed by any especial disturbance in others it causes severe disturbance of circulation, even of gangrene. In 54 cases collected by him of ligation of the vein gangrene occurred twice. When the artery and vein were ligated simultaneously gangrene was observed in 14 out of 24 cases.

Finally while removing a tumor, after being compelled to resect a portion of the femoral vein and seeing septic gangrene of the extremity follow, Halberstædter attempted by experimentation to ascertain the reason why the femoral ligation was followed by so different results in different cases. He found [23] that the restoration of the circulation depended on the amount of blood pressure, the function of the valves, and finally on the extent of previous ligation of veins in separate tracts.

In consequence of such investigation Halberstædter concludes that in cases where the femoral vein is injured the method of controlling the hemorrhage should be selected which preserves the lumen of the vessel, indeed lateral closure, and best by venous suture. When operating for the removal of tumors the femoral vein is enveloped in a neoplasm, Halberstædter advises to save as much as possible of the vein trunk and especially of its lateral branches. The surgeon must under all circumstances make every effort to save the femoral artery. The most careful antisepsis must be observed and all hemorrhage entirely controlled in order to avoid extravasation into the cellular tissue. When the artery is saved and the blood pressure good the limb should be elevated after the operation. Under conditions of lowered pressure or simultaneous ligation of the artery the elevation of the limb is contra-indicated.

LIGATION OF THE FEMORAL VEIN AT POUPART'S LIGAMENT.

Contrary to the purely anatomical investigations of Braune, both the injection experiments of Braun as well as fifty-three actual successful clinical results of the ligation of the vein in man (Dr. Franz's [Berlin] case being included in this list) have demonstrated that the ligation of the femoral vein at Poupart's ligament is possible without danger to the life of the extremity involved.[24]

This knowledge of this freedom from danger after ligation is of especial importance to military surgeons. The work of Halberstædter gives one indeed the impression that one should almost always avoid using a ligature and should substitute the vein suture. This is indeed possible in many cases but not when the vein wall is stiffened or changed by inflammatory processes. The suture holds surely only when the vein wall is elastic and normal. When these conditions do not obtain the surgeon must choose between a lateral clamp or ligation. A lateral ligature is possible only with an elastic vein wall. Now, if in the regulated conditions of a hospital the

[19] Beitrage z. Geb. und Gynakologie, vii, 3.
[20] v. Langenbeck's Arch., Bd. lxxii, Heft 1.
[21] Munch. med. Woch., Oct. 27, 1903.
[22] Königsberg, Wiener Med. Presse, 1903, Bd. xliv, 2314.
[23] Beitr. z. Klin. Chir., 1903, Bd. 38, H. 2.
[24] Deutsche Militararztl, 1903, no. 10.

lateral compression has the disadvantage that one does not know when to remove the clamp without danger of secondary hemorrhage, how much more difficult would it be for the surgeon in the field where the vessel is clamped to-day and five to seven days later the patient is transferred to another hospital where the surgeon there has not to check hemorrhage temporarily but to treat the case to the end. It is gratifying to learn, says Dr. Frank, that (if experience does not refute the above statement) the femoral vein can be ligated at Poupart's ligament without dangerous conditions resulting from the procedure.

(To be continued.)

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOM STORER, M D., BOSTON, SECRETARY.

MEETING of January 19, 1904, Dr. G. H. Washburn, in the chair.

DR. F. A. HIGGINS reported "Three Cases of Extra-uterine Pregnancy treated by Vaginal Section."[1]

DR. F. H. DAVENPORT: I think the lesson to be learned from these cases is that in the majority of cases the abdominal route is the safer. I have been noticing lately that there is a reaction in France and Germany against the vaginal route. In Boston we have never been especially enthusiastic about that route, and it is pleasant to see that in the countries where it has been most in favor the tide is apparently swinging the other way. In these cases the difficulty of diagnosis between pus and extra-uterine pregnancy is very great, yet it is of the highest importance.

DR. F. S. NEWELL: I have operated upon only one case of extra-uterine pregnancy by the vaginal route and then I thought I was going to find pus. The patient had been in the hospital six months previously with a pus tube. During the operation a severe hemorrhage occurred which it was thought was controlled by packing. The patient was watched for an hour, and as then no improvement was apparent I opened the abdomen to find that the packing only partially controlled the bleeding. The patient made a good recovery but I was impressed with the difficulty of being certain that by packing we are really stopping a hemorrhage.

DR. CHARLES M. GREEN: I should agree that the abdominal route is the safer, and should attack from below only when I thought pus was present. I have only once operated from below and then I thought pus was present. If there is any question as to the nature of the mass, preparations should be made to open the abdomen if necessary. The difficulty in diagnosis between extra-uterine pregnancy and inflammatory masses is all the greater because the two are often associated.

DR. EDWARD REYNOLDS: I too have only once attacked an extra-uterine pregnancy from below and then it was thinking that pus was present. The symptoms were strongly pointing to pus. On turning out an old clot from the broad ligament an alarming hemorrhage began which was finally controlled by packing. This packing was removed twenty-four hours later through a misunderstanding of orders, and another severe hemorrhage began which was very difficult to control.

DR. J. B. SWIFT: I see that Dr. J. R. Goffe in advocating the vaginal route says that it is not necessary to get all the blood clots out of the peritoneal cavity as it can safely take care of a certain amount of blood. I am interested in these cases as I have now under my care a case where an extra-uterine pregnancy was left alone with recovery. The patient first came to the hospital in December with no evidence of trouble but moderate pain in the side. She stayed only a few days. Later in the month she returned with a history of flowing and now a mass was to be felt. This was thought to be a fibroid and the abdomen opened. The pelvic cavity was found to be entirely walled off by adherent intestines and the diagnosis was changed to pelvic abscess. The abdominal wound was closed and the mass attacked from below. A cavity was opened full of blood clot into which a tube was inserted and the patient finally went home recovered. The tube had undoubtedly ruptured into the broad ligament. I feel myself that the abdominal is the safer route.

[1] See page 561 of the JOURNAL.

Recent Literature.

The Practice of Obstetrics. Designed for the Use of Students and Practitioners of Medicine. By J. CLIFTON EDGAR, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College; Attending Obstetrician to the New York Maternity Hospital. Octavo, with 1221 illustrations, many being in colors. 1111 pages. Philadelphia: P. Blakiston's Son & Co. 1903.

This book by Dr. Edgar is the most elaborate and comprehensive work on obstetrics from a single author, which has come to us for review. It is so comprehensive in its size, scope and material, as to make it a most valuable volume for extended reading and for a book of reference for the library, but at the same time it is questionable if the work is as well fitted for the average undergraduate medical student as a more concisely written textbook. This criticism, however, in no way detracts from the great merit and value of the book, which has no doubt required years of labor on the part of the author in its preparation.

In place of the usual chapters the volume is divided into ten parts, each of which is suitably subdivided into sections. Each part has its own table of contents, but these would be improved if the page references were given in connection with them. The author has adopted for part headings the names, Physiological Pregnancy, Physiological Labor, and Physiological Puerperium, instead of using the terms Physiology of Pregnancy, Physiology of Labor, etc. This is an improvement, we believe, over the old terms. The arrangement of the subject matter in the book does not at all times tend to increase the ease of reference or the conciseness of the volume, but otherwise than this the general plan of the book is excellent. For example, the usual section on the anatomy of pregnancy is omitted,

but the same material is introduced in appropriate places under the physiology of pregnancy and of labor. An instance where a subject seems to be apparently misplaced is that of the treatment of placenta previa which is taken up in the early part of the book in the chapter on the Anomalies and Diseases of the Placenta, bringing it even before the treatment of normal labor.

The author's asepsis is thoroughly modern, and the details of his practice are carefully explained. He strongly urges the use of rubber gloves as a routine measure. He accepts the belief that the vagina does not contain pyogenic cocci under normal conditions, and that autoinfection is impossible. He asserts that the physician in a majority of cases is the responsible person, but that even with sterile gloves danger of infection still remains. The importance of the shower over the tub bath in preparing the patient for labor is well emphasized from the danger of the soiled and infected water entering the vagina, a point which has recently been brought to the front by foreign writers.

Several pages are devoted to the subject of cephalometry, and although the proceeding has not gained much standing otherwise than in the hands of a few French writers, yet Edgar says the results go to show that the method is of undoubted value in determining the relative size of the fetal head and maternal pelvis and the choice of time for the interruption of pregnancy.

In his treatment the author is thoroughly modern and yet conservative. He takes a broad view of the subject of pregnancy and tuberculosis, and while he says that future generations must decide on the propriety of the interruption of pregnancy in tuberculous subjects as a routine measure, yet the obstetric treatment has now come to be regarded, theoretically at least, as the proper course; it still meets, however, with considerable opposition from conservative sources.

In the discussion on the determination of sex, there is considerable space allotted to the theories of Schenk, more we think than is necessary or warranted by Schenk's methods or results which are now pretty generally discredited.

The author rejects the time honored theory that flexion of the fetal head begins with labor, and says that he believes that flexion is complete or nearly so before the onset of labor, a position which we believe will ultimately be found to be correct.

Another example, showing perhaps the author's over-enthusiasm on the subject, is the devotion of ten complete pages of illustrations to various monstrosities and deformities, many of which have no bearing whatsoever on the subject of obstetrics.

Obstetrics is a subject which well repays good illustrating, and the book is very thoroughly provided for in this respect, and the majority of the illustrations are above criticism. Some might as well be omitted, as Fig. 195 which shows two tin cans of chloride of lime and sodium carbonate, also certain obsolete and discarded forms of instruments and methods. If only the better ones are shown and illustrated in modern books, the older and poorer ones will eventually disappear. This must necessarily of itself tend to improve obstetric practice, and obstetric books as well. This book is, however, a splendid one as it is, and worthy of very high commendation, but in our opinion would be improved by considerable elimination, and by a rearrangement of its matter.

The Treatment of Neurasthenia. By A. Proust and Gilbert Ballet. Translated by Peter Campbell Smith, L.R.C.P., L.R.C.S., Edinburgh. 12mo. pp. xiv, 213. New York: Edward R. Pelton. 1903.

This little volume is really a treatise upon the whole subject of neurasthenia, nearly half of it being devoted to a discussion of the nature, causes and symptoms of the disorder. It is written, of course, from the French point of view, and some of the statements seem strange to the American physician, namely, that neurasthenia is commoner among men and very rare in the laboring class. The book is very suggestive, and the discussion of the various forms of treatment, dietetic, psychical, hydrotherapeutic and the like, is sound and full. The translation is satisfactory, but the proofreading is defective. The intelligent compositor had perhaps a method in his madness when he substituted "painist" for pianist.

Roger on Infectious Diseases. Their Etiology, Diagnosis and Treatment. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris, etc. Translated by M. S. Gabriel, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co.

This volume of 874 pages, Dr. Roger's work on Infectious Diseases, is translated into English by Dr. M. S. Gabriel. The book occupies a somewhat unique position among medical publications in that it combines in rather unusual degree the results of laboratory investigation with a wide and well digested clinical experience. This double function, so often missed in the modern textbook, Dr. Roger is peculiarly capable of undertaking, since his work has led him not only into the study of cases at the bedside, but also into the fundamental problems underlying the causation of disease. With this equipment he has produced a book certainly of much value, and one which in reality covers a far wider field than its title would indicate. The practical study of the subject is also given due weight in the final chapters devoted to a consideration of the therapeutics of infectious disease.

The book is excellently printed, liberally supplied with large type as an aid to the reader, rather sparingly illustrated as books now go, and with relatively few references to original sources, although the names of investigators are freely used throughout the text. We cordially recommend the book to those desiring to base their information upon broad and solid foundations.

The Practical Medicine Series of Year Books. Issued monthly under the general editorial charge of GUSTAVUS P. HEAD, M.D. Vol. IX. Physiology, Pathology, Bacteriology, Anatomy. Edited by W. A. EVANS, M.D., ADOLPHUS GEHRMANN, M.D., and WILLIAM HEALY. August, 1903. Chicago: The Year Book Publishers. 1903.

Though this series is intended primarily for the general practitioner, this small volume is of value also to the specialist. The editors have been very successful in offering reviews which are not only readable but far more accurate than the average.

The section devoted to physiology in its seventeen well chosen reviews hardly covers the extensive recent literature on this subject. In the 100 pages on pathology are given the newer methods of technique and laboratory diagnosis, as cyto-diagnosis, cryoscopy, and improvements in blood examination. The questions of paratyphoid fever and certain parasitic diseases are well discussed. The few pages devoted to hygiene and anatomy emphasize the recent advances in these lines. The glossary of newer medical terms is fairly complete and forms a valuable feature. That the volume is well up to date is evident from the fact that there are many reviews of papers published the month in which the book was brought out.

The Elements of Pathological Anatomy and Histology for Students. By WALTER SYDNEY LAZARUS-BARLOW, B.A., B.C., M.D., F.R.C.P. Philadelphia: P. Blakiston's Son & Co. 1903.

This book deals both with general and special pathological anatomy. All physiological considerations have been excluded, and the present treatise forms a complementary volume to the author's well known manual of general pathology. The two books together cover the entire field of pathological anatomy and pathological physiology.

The author believes, and rightly we think, that it is better to present to the elementary student clearly and fully the fundamental pathological alterations than to burden and confuse his mind with the names and definitions of relatively unimportant subvarieties. Special attention is given to those pathological conditions that are of greatest interest and importance to the clinician, and the book may be recommended to the practicing physician and clinical student because the subject is presented from their point rather than that of the laboratory worker.

The subject of retrograde change is first considered. This is followed by excellent chapters on inflammation and its sequels. One of the best sections is that devoted to tumors. The etiology of neoplasms is well discussed. The author regards the parasitic theory of cancer-formation as resting upon a very slender foundation. About two thirds of the volume are devoted to the pathological anatomy of the various organs and tissues. The author evidently has a first hand knowledge of the subject and these pages contain original observations of value, but it is a pity he has not inserted the results of important pathological studies made during recent years by European and American pathologists. For example, in discussing the relation of diabetes to lesions of the pancreas there is no mention of the Islands of Langerhans; and no reference is made to the characteristic proliferation of endothelial cells in the lymphatic apparatus of the intestine in typhoid fever which Mallory has shown to be the essential lesion.

The book is profusely illustrated with admirable drawings, all of which are original. The histological pictures represent faithfully the actual appearance of corresponding sections and will be an aid to all students of pathological histology who select this book as their guide.

Anesthesia in Dental Surgery. By THOMAS D. LUKE, M.B., F.R.C.S.E. New York: Rebman Company, 10 West 23d St. 1903.

The opportunity for witnessing the methods of using the different kinds of anesthetics and of studying their action must necessarily be limited up to the time the recently graduated dentist begins his practice. With the best of facilities and the best of instruction it is not possible to drill the average dental student so that awkwardness and apprehensiveness will not affect his early efforts in administering anesthetics.

This little book furnishes so much accurate information that it will serve in many cases in lieu of experience. The descriptions of the apparatus in use are clear and sufficient. The comparative values of the different agents are well drawn and the dangers are pointed out without prejudice and in such a way as to warn the practitioner without alarming him.

The book is essential to the young dentist, and the older man in the profession will find many suggestions that will enable him to improve his practice. The suggestions as to sterilization of mouthpieces when using nitrous-oxide are most timely.

S. A. H.

Lectures on Diseases of the Lungs and the Heart. By JAMES ALEXANDER LINDSAY, M.D., F.R.C.P., (Lond.) M.A., Professor of Medicine, Queen's College, Belfast, Physician to Royal Victoria Hospital, Belfast, etc. New York: William Wood & Co. 1904.

A pleasant, readable book, covering many points of diagnosis and treatment in an adequate manner. It has the disadvantages but, also, in large measure, the advantages of lectures put into book form; lacks the systematic, comprehensive presentation but carries a certain individual charm which, of course, finds its most ready recognition in the appreciation of those who have been students of the author. It offers no new facts, lays no special claim to originality, leaves out inevitably some points of diagnostic value, and very wisely neglects controversial issues. It is a book for general reading rather than for reference.

THE BOSTON

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LABORATORIES OF PATHOLOGY AND PHARMACOLOGY AT THE UNIVERSITY OF PENNSYLVANIA.

The new laboratories of pathology, physiology and pharmacology at the University of Pennsylvania will be dedicated and opened for inspection on June 10. In connection with the opening of these very extensive and fully equipped laboratories it is of interest to call attention to the increasingly important place which laboratory teaching is taking in the modern medical curriculum. Even within the memory of men who are still young a great part of the teaching was done without the assistance afforded by laboratory methods, and it is sometimes hard to realize that the vast development of this type of instruction has come within the last two decades.

Tracing the methods of teaching in the University of Pennsylvania, which is the oldest medical institution in the country, we find that for upwards of one hundred years, from 1765 to 1868, the methods of instruction were relatively little changed in spite of the great accessions to medical knowledge during that time. Didactic lectures were the essential basis of the medical course, together with clinics at the Pennsylvania and Philadelphia Hospitals, which were at first optional and later obligatory. No systematic teaching was done at the bedside, and practical work in laboratories was unknown. A new method developed in 1868, exactly one hundred years after the graduation of the first class. The change consisted in certain lectures in pathology and in microscopy, together with practical demonstrations. In the years from 1868 to 1873 laboratories of chemistry, physiology, histology, pathological anatomy and pharmacology were established, and succeeding years saw their full equipment. This was a pioneer step on the part of the University of Pennsylvania. A further development of the laboratory method from the years 1877 to 1903 was inaugurated by the completion of the new medical department in West Philadelphia. It was then supposed that the facilities for teaching would be adequate for a period of fifty years. This, however, proved not to be the case, and the necessity for a new and much more extensive laboratory building has become apparent within the last few years, with a result that funds were obtained for the building of the new laboratories which are now completed and about to be put to practical use.

We have before commented on this building, and certain of its architectural features, and therefore we simply call attention to some of its main characteristics. It is two stories in height, and measures 340 feet front by 200 feet depth, the front exposure facing north for the purpose of securing the best light for microscopic work. Physiology and pharmacology occupy the first floor, and the second will be devoted exclusively to pathology and pathological bacteriology, with special provisions for surgical pathology, neuropathology and practical clinical pathology. A museum of pathology is arranged in close connection with the laboratory for purposes of teaching. Abundant private rooms for special research are provided, and in general, although prophecies in such matters have again and again proved fallacious, would seem to be adequate for any expansion which these subjects are likely to undergo in the future.

It is not to be expected that any definite reaction from the stress now laid upon laboratory teaching is likely to take place. At the same time it must be acknowledged that we are now seeing a phenomenal and possibly somewhat disproportionate devotion to what is popularly known as the theoretical side of medicine. There is danger that the sense of proportion may be lost in our enthusiasm for the type of research which such laboratories as this under consideration represent. At any rate, it behooves the great mass of medical men, whose interests may include but still lie beyond the laboratory, to see that facilities for practical instruction do not take a secondary place, and that the proper proportion be established and maintained between the all-important theoretical side of medicine

and its practical application. The simultaneous development of hospitals is an indication that this end is likely to be realized. We congratulate the University of Pennsylvania on this accession to its facilities for teaching, an accession which has a bearing on medicine far wider than the region which will be immediately benefited thereby.

DEVELOPMENT OF FREE PUBLIC BATHS.

AFTER a delay of one year, largely on account of the building trade strikes, the Milbank Memorial Free Public Baths were opened in New York with appropriate ceremonies on May 19. The building, which is on East 38th Street, is the gift of Mrs. Elizabeth Milbank Anderson. It was erected at a cost of $150,000, and will accommodate 4,800 bathers daily. This, together with the Rivington Street public baths and others established by various charitable societies, provides in New York, it is stated, facilities for every person in the city, not otherwise provided, to have a cleansing bath twice each week. The opening ceremony consisted in the formal presentation of the property by Mr. A. G. Milbank to the New York Association for Improving the Condition of the Poor, which has been entrusted with the management of the institution, and Mr. R. Fulton Cutting, as president of the association, accepted the gift. Dr. Darlington, president of the Board of Health, made a short address, and among the physicians present was Dr. Simon Baruch, who was the originator of the free "rain bath" in this country and to whose persistent efforts is due the present free bath system of New York City.

The history of Dr. Baruch's fight for free public rain or shower baths dates back to August, 1889, when through a Philadelphia medical journal he made the first plea of the kind. Shortly afterward he spent a year in Europe studying the systems of the public baths there, and he returned convinced that his original idea of the rain bath for public use was the best. The chief advantages of this form of bath are economy of space, water and care, without the danger of communicating disease through careless attendants. The temperature may be gradually reduced after the cleansing; it is more refreshing than a tub bath, and prevents danger from relaxation. "Tubs," says Dr. Baruch, "are not the proper thing for a free bath for the poor. If you have tubs you must employ a force to fill and empty them, and if they are to be kept in strictly sanitary condition they must be cleansed after each bather. With the rain bath, as fast as one person takes his scrub, another may step up." With several city administrations he labored persistently, but accomplished little. Then the New York Academy of Medicine gave formal approval of his method, while two or three charitable societies took it up and constructed public baths in accordance with his ideas. In 1895 a mandatory public bath bill was passed by the Legislature, but it was not until two years afterward that a committee was named to wait on Mayor Strong to urge the building of a public bath under the provisions of the law. The mayor gave his permission, and the same day steps were taken toward the building of the bath in Rivington Street. Last year 700,000 working people made use of this bath, and in the public schools 30,000 children used the rain baths which have recently been established in the schoolhouses through Dr. Baruch's efforts. On the occasion of the opening of the Milbank bath Dr. Baruch said: "Naturally enough, it is a matter of considerable satisfaction to me to be able to tell you that outside of New York there is no city in the world where anybody may go into a public bath, as he goes into a public park, and enjoy its privileges without cost. I think the realization of that fact alone is ample compensation for all the years of hard work it has cost, to say nothing of what has been achieved in other communities all over the world."

It is worthy of note that on the day following the opening of the Milbank bath, May 20, the Board of Estimate and Apportionment appropriated more than $1,000,000 for the construction of new public baths. Of this sum, $633,000 is for four baths in the Borough of Manhattan, $345,000 for three in Brooklyn, and a large sum for one in the Bronx.

BULLETINS OF THE OREGON STATE BOARD OF HEALTH.

WE are in receipt of four pamphlets from the Oregon State Board of Health, published as bulletins and concerning themselves respectively with Smallpox in Oregon, Hints upon School Hygiene, the Prevention of Typhoid Fever, and the Prevention and Cure of Consumption. Our object in calling attention to these publications is not only for the intrinsic interest which they have for professional men, but also to bring to notice the excellent missionary work which such

statements of fact are likely to accomplish, not only in the special community concerned but in the country at large. The campaign of education which has received renewed stimulus of late in connection with certain prevalent diseases, notably tuberculosis and typhoid fever, should certainly be extended, and there is no better means of accomplishing this end than through the publication by persons in authority of plain statements which may be read and appreciated by the laity.

Among many interesting statistics regarding the prevalence of smallpox in the state, and its relation to vaccination, the following incident is significant: In an epidemic of 29 cases there were 9 deaths, a mortality of over 30%. Of these 29 cases 12 were unvaccinated, 9 of whom died, a mortality of 75%. Of the vaccinated cases not one died, and none were at any time dangerously ill. In the pamphlet on school hygiene much good and sound advice is given upon many points relating to school life, all of which is calculated to be of interest to parents without unduly exciting them as to the dangers to be met with in schools. Suggestions on the prevention of typhoid fever and of consumption are similar to those with which we are now perfectly familiar. Their wide dissemination is certainly to be desired. If knowledge is power, and there is undoubted truth in the aphorism, there can be no question that, as the people come to know the nature of prevalent and fatal diseases, they will on the one hand take rational methods of precaution, and on the other not be unduly alarmed when such diseases appear.

AWARD OF THE WARREN TRIENNIAL PRIZE.

The Warren Triennial Prize of $500 in the gift of the Massachusetts General Hospital has just been awarded to Prof. Max Borst, Professor in the University of Wurzburg, Germany.

This prize was founded by the late Dr. J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation, considered worthy of the premium, on some subject in physiology, surgery or pathological anatomy; the arbitrators being the physicians and surgeons of the Massachusetts General Hospital. The dissertations must be submitted anonymously.

The title of Professor Borst's dissertation is "Neue Experimente zur Frage nach der Regenerationsfahigkeit des Gehirns," in which the regeneration of medullated nerve fibers in the central nervous system after trauma is conclusively demonstrated.

Professor Borst is a pathologist of established reputation and is the author of an extensive work upon the pathology of tumors, recently published.

The number of dissertations submitted was larger than ever before. They came from widely distant parts of Europe as well as from America. The widespread interest thus shown in the prize, as well as the great merit of many of the dissertations, is gratifying.

MEDICAL NOTES.

Decennial of Discovery of Roentgen Rays. — The tenth anniversary of the discovery of the Roentgen rays is to be celebrated in Berlin in 1905. Professor von Bergmann will preside at the congress and exposition which it is proposed to hold.

Examination for Director of Pathological Laboratories, Bellevue Hospital. — It is announced that a civil service examination will be held June 7 for the position of director of pathological laboratories in Bellevue and allied hospital in New York. The salary of this position is $5,000 a year, and its incumbent is required to devote all his time to the work of the laboratory and is not permitted to hold a position in a medical school.

Manila Mortality Statistics.—The monthly report of the Board of Health for the Philippine Islands gives the following death statistics for January of this year:

Convulsions of children, 272; pulmonary tuberculosis, 78; eclampsia, nonpuerperal, 47; chronic bronchitis, 46; congenital debility, 40; acute bronchitis, 34; diarrhea and enteritis, 31; meningitis, 25; beri-beri, 25; dysentery, 18; malarial fevers, 13; endocarditis, acute, 12; pneumonia, 11; Bright's disease, 8; bubonic plague, 7; cerebral hemorrhage, 6; puerperal septicemia, 5; typhoid fever, 5; Asiatic cholera, 3; tetanus, 4; leprosy, 3.

Of the above mentioned causes and deaths the following occurred in infants prior to the completion of the first year of life: Convulsions of children, 272; eclampsia, nonpuerperal, 47; chronic bronchitis, 32; congenital debility, 40; acute bronchitis, 32; diarrhea and enteritis, 24; meningitis, 15; dysentery, 1; pneumonia, 1;

tetanus, 4. Of the 796 deaths occurring among inhabitants of the city, 475 or 59.6%, occurred in children less than twelve months of age.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, May 25, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 68, scarlatina 19, typhoid fever 5, measles 129, smallpox 0.

A CENTENARIAN. — Mary Canney, reputed to be about one hundred and one years old, died in Woburn, Mass., recently.

OPENING OF THE COREY HILL HOSPITAL. — The Corey Hill Hospital will be opened Wednesday, June 1, and guests will be received at the building from three until six o'clock. This is a private institution erected under the auspices of certain physicians in Boston.

SURGICAL OUT-PATIENT DEPARTMENTS, BOSTON CITY HOSPITAL. — New buildings for the surgical out-patient department and three new wards are opened to-day. The trustees of the hospital have sent out invitations for the ceremonies in the afternoon. To-day is also the fortieth anniversary of the dedication of the hospital.

MORTALITY RATE OF DIPHTHERIA. — In the annual report of the Board of Health of Worcester, Mass., the mortality statistics for diphtheria are given as 3.84 for 1903, as contrasted with upwards of 8 in 1897 and 1898. In general there has been a constant decrease in the number of deaths from this disease, with a record for 1903 which is nearly two points better than any preceding year of which the statistics are given.

EPIDEMIC OF CEREBRO-SPINAL MENINGITIS IN CONNECTICUT. — A recent bulletin of the Connecticut State Board of Health discusses the question of an epidemic of cerebro-spinal meningitis in that state. During the first three months of the present year but six cases were reported. In April the disease assumed an epidemic character and 43 cases were reported in Hartford alone, with 20 deaths. Since April 1 reports of its presence have been received from various towns, with a total of 76 cases.

NEW YORK.

PREVALENCE OF MENINGITIS. — Within the last three weeks there has been a very great increase in the number of cases of cerebro-spinal meningitis in the city, with a large number of deaths, said to have been one hundred and fifty, in a space of two weeks. Measures are being taken by the health department to check, if possible, the spread of the disease.

RECEPTION HOSPITAL FOR THE INSANE. — It is gratifying to learn that Governor Odell has approved the bill passed by the Legislature authorizing the City of New York to acquire a site and to lease it to the state for the establishment thereon of a reception hospital for the insane, and authorizing the State Commission in Lunacy to erect such a hospital. It was generally understood that the governor had decided to veto this bill, fearing that it carried with it an appropriation of $300,000. It is stated, however, that recently Dr. Samuel B. Ward of Albany labored with the governor for an hour, explaining the necessity of a detention psychopathic hospital in New York, and assuring him that the purport of the bill was simply to authorize the city to acquire a site.

BEQUEST TO MANHATTAN EYE AND EAR HOSPITAL. — At a meeting of the board of directors of the Manhattan Eye and Ear Hospital held May 17 it was announced that a gift of $40,000, pledged by Edward R. Thomas, had saved the institution the loss of $125,000 in donations conditionally promised for a new building. The $125,000 was not to be given unless a total of $165,000 could be raised. Last year the Thomas family gave $50,000 to the same hospital to endow a ward, to be known as the Samuel Thomas Memorial Ward, and this latest gift from Mr. Thomas is a personal memorial to his father, the late General Thomas. The Manhattan Eye and Ear Hospital is to be removed from its present location on Park Avenue, near the Grand Central Railroad Depot, and steps will immediately be taken to purchase a plot of land for the new building. The site selected is in East 59th Street, within a block of the projected laboratories of the Rockefeller Institute for Medical Research.

Obituary.

A TRIBUTE TO BENJAMIN H. HARTWELL, M.D.

BY THE MASSACHUSETTS MEDICO-LEGAL SOCIETY.

THE Massachusetts Medico-Legal Society, recognizing the deplorable loss which Forensic Medicine has suffered in this Commonwealth through the death of the late Benjamin H. Hartwell, M.D., of Ayer, one of the original members

and the fourth president of this Society, desires to record, in this permanent form, its tribute to Dr. Hartwell's character and its estimate of the rare traits which endeared him to his fellows.

We recall the stern conscientiousness which animated his conduct of life and was a controlling characteristic. We remember how amply he exemplified the statutory qualifications of "ability, discretion and learning" which led to his selection from among all his professional neighbors in the Fourth Middlesex District, fitting him to discharge acceptably the responsible functions of a medical examiner, and which from 1877 to his death retained him as a conspicuous exponent of the trustworthy servant of the Commonwealth. We remember with gratitude the earnest, cordial, dignified manner in which he lent himself to the promotion of every good cause. Loyalty to duty was to him a passion and an inspiration. Simple honesty, his mental frankness and intellectual humility, dominated him. Fidelity to his memory and what it represents is the truest evidence that he has not lived in vain.

Correspondence.

SANITARIUM viz. SANATORIUM.

ARLINGTON HEIGHTS, May 18.

MR. EDITOR: We are frequently asked, "What is the difference between Sanitarium and Sanatorium?" Gould's dictionary of medicine gives the following definitions: "*Sanitarium*, — A health station — a place or institution where the conditions are such as especially to promote health and vigor. The word is often incorrectly employed for Sanatorium, which is a hospital or place for curing those who are sick. A Sanitarium may be used for a Sanatorium, but it is not necessarily the same thing." Also, "*Sanatorium*, — An establishment for the treatment of the sick; especially a private hospital." In England and on the Continent, sanatorium is largely used to designate a hospital for the treatment of consumptive patients. And in this country the word has been seized upon for the same purpose, and is rapidly becoming associated in the public mind with "retreats" for cases of tuberculosis. So prevalent is this idea becoming that a large institution in New York State, which for half a century has been designated a Sanatorium, has found it advisable to drop the name and substitute the word, "Retreat."

This state of affairs is unfortunate, for while sanatorium rightly includes the treatment of consumptive cases, it by no means excludes other diseases.

The word "hospital" is so entirely associated with the idea of acute and surgical illness, with bedridden patients and red tape, that its use is rightly restricted to this kind of work. "Asylum" has come to be entirely given over to places caring for the insane; and in the minds of many, "retreat" conveys the similar idea when attached to a private institution. Various private places have endeavored to surmount this difficulty by substituting fancy names ending in "hurst" or "croft" or "hall"; none of these, however, convey any idea of the end sought. If, then, we relegate the word "Sanatorium" to the institution for consumptives, what are we to do for a word to convey the idea of an institution where, amid congenial, semi-homelike surroundings, the chronic sufferer — nervous, rheumatic, cardiac, dyspeptic, etc. — can secure that environment and scientific treatment which his case demands?

ARTHUR HALLAM RING.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, MAY 14, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Measles.
New York . .	3,908,644	1,587	503	28.16	20.54	3.21	.25	2.83
Chicago . . .	2,021,086	531	108	20.15	22.97	.94	.37	.18
Philadelphia .	1,407,968	920	129	28.46	14.81	1.73	.38	1.54
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	217	47	25.34	12.90	.92	.46	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	136	—	25.73	11.03	1.47	—	1.47
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	73	16	19.18	16.44	—	—	—
Boston . . .	617,950	218	54	20.18	16.51	.92	.46	.46
Worcester . .	136,925	25	7	16.00	4.00	—	4.00	—
Fall River . .	119,349	33	15	27.27	18.18	3.03	—	—
Lowell . . .	104,402	31	10	16.13	12.88	—	—	3.22
Cambridge .	100,998	16	6	6.25	25.00	6.25	—	—
Lynn	73,875	24	8	16.67	—	—	4.16	—
Lawrence . .	72,348	25	8	8.00	24.00	—	—	—
Springfield .	73,020	15	5	40.00	20.00	6.67	—	—
Somerville .	70,413	24	9	20.83	20.83	4.16	4.16	—
New Bedford	68,883	31	12	19.35	19.35	—	—	—
Holyoke . . .	50,538	18	7	5.55	16.67	—	—	—
Brockton . .	46,801	6	1	16.67	16.67	—	—	—
Newton . . .	39,310	10	3	10.00	10.00	—	—	—
Haverhill . .	39,061	12	3	8.33	8.33	—	—	—
Malden . . .	37,205	7	1	—	28.60	—	—	—
Salem	37,188	15	3	—	—	—	—	—
Chelsea . . .	36,499	7	0	14.30	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	—	—	—	—	—	—	—
Everett . . .	30,209	8	2	—	—	—	—	—
North Adams	29,201	13	3	15.40	38.50	—	—	—
Quincy . . .	26,798	8	5	12.50	—	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	5	1	40.00	—	—	—	—
Brookline . .	28,576	4	1	25.00	—	25.00	—	—
Pittsfield . .	22,870	9	—	11.11	22.22	—	—	—
Medford . . .	21,956	1	1	—	100.00	—	—	—
Chicopee . .	21,692	6	2	16.67	16.67	—	—	—
Northampton	20,314	2	0	—	—	—	—	—
Beverly . . .	15,807	3	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	4	1	25.00	—	—	—	—
Adams . . .	14,745	4	1	25.00	25.00	—	—	—
Attleboro . .	14,561	3	1	—	—	—	—	—
Hyde Park .	14,500	6	1	16.67	16.67	—	—	—
Newburyport	14,478	5	0	—	20.00	—	—	—
Woburn . . .	14,815	6	—	—	—	—	—	—
Melrose . . .	13,819	1	—	—	—	—	—	—
Westfield . .	13,809	6	—	33.33	16.67	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	8	1	25.00	12.50	—	—	—
Revere . . .	13,609	2	1	50.00	—	—	—	—
Framingham	13,974	2	—	50.00	—	—	—	—
Peabody . . .	13,406	—	—	—	—	—	—	—
Gardner . .	12,324	6	2	33.33	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	1	0	100.00	—	—	—	—
Weymouth .	11,350	1	0	—	100.00	—	—	—
Plymouth . .	11,189	—	—	—	—	—	—	—

Deaths reported, 3,695; under five years of age, 982; principal infectious diseases (smallpox, measles, scarlet fever, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 917; acute lung diseases 674, consumption 411, scarlet fever 51, whooping cough 8, cerebro-spinal meningitis 102, smallpox 8, erysipelas 13, puerperal fever 23, measles 59, typhoid fever 61, diarrheal diseases 102, diphtheria and croup 76, influenza 3.

From whooping-cough, New York 1, Philadelphia 3, Baltimore 1, Pittsburg 1, Boston 1, Springfield 1. From smallpox, Philadelphia 5, Baltimore 1, Pittsburg 2. From cerebro-spinal meningitis, New York 97, Philadelphia 1, Baltimore 1, Lynn 1, Somerville 1. From erysipelas, New York 4, Chicago 2, Philadelphia 2, Baltimore 1, Boston 1, Worcester 1, Lynn 1, Somerville 1. From typhoid fever, New York 10, Chicago 6, Philadelphia 25, Baltimore 3, Pittsburg 12, Providence 1, Boston 2, Lynn 1, Chelsea 1. In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending April 30, the death-rate was 16.3. Deaths reported 4,785; acute diseases of the respiratory organs (London) 100, whooping cough 213, diphtheria 49, measles 155, smallpox 8, scarlet fever 40.

The death-rate ranged from 7.5 in Reading to 25.9 in Wallasey; London 15.6, West Ham 15.2, Brighton 19.0, Southampton 13.4, Plymouth 21.0, Bristol 16.0, Birmingham 19.4, Leicester 12.1, Nottingham 15.7, Liverpool 21.8, Bolton 17.8, Manchester 20.9, Salford 18.2, Bradford 20.7, Leeds 17.0, Hull 17.0, Cardiff 13.3, Rhondda 16.6, Wigan 20.8, Marthyr Tydfil 12.9, Whillesden 8.3, Warrington, 20.9.

METEOROLOGICAL RECORD.

For the week ending May 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 8	30.02	68	78	57	66	72	69	S W	S	16	12	C.	C.	0
M. 9	29.76	54	59	50	97	96	96	N E	N W	14	8	R.	R.	.91
T..10	29.89	61	72	50	82	94	88	N W	E	12	8	F.	O.	.12
W.11	30.06	58	67	50	90	87	88	N	S E	12	6	O.	C.	.14
T..12	30.10	58	66	51	85	65	75	N	S E	11	4	O.	C.	0
F..13	30.08	58	63	53	70	88	79	E	E	10	4	C.	C.	0
S..14	30.06	52	58	50	88	96	92	N E	N E	12	10	O.	O.	T.
☞	30.00		66	52			84							1.17

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 21, 1904.

J. J. SNYDER, passed assistant surgeon. Detached from the "Kearsarge" and ordered to the "Maine."

W. H. BUCHER, surgeon. Detached from the Naval Station, Cavite, P. I., and ordered to the Naval Hospital, Yokokama, Japan.

E. THOMPSON, surgeon. Commissioned surgeon, with the rank of lieutenant commander, from March 3, 1903.

F. M. FURLONG, passed assistant surgeon. Detached from duty with the marine battalion on the "Dixie" and ordered home and to await orders.

C. ST. J. BUTLER, passed assistant surgeon. Commissioned a passed assistant surgeon with the rank of lieutenant, from October 26, 1903.

R. O. MARCOUR, assistant surgeon. Detached from duty with the marine battalion on the "Dixie" and ordered to the "Hancock."

P. S. ROSSITER, assistant surgeon. Detached from the naval recruiting station, Baltimore, Md., and ordered to the naval station, Honolulu, H. I., sailing from San Francisco, Cal., via steamer "Abarenda," June 4.

W. D. OWENS, assistant surgeon. Appointed assistant surgeon with rank of lieutenant, junior grade, from May 17, 1904.

F. E. SELLERS, acting assistant surgeon. Appointed acting assistant surgeon from May 17, 1904.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 19, 1904.

CARTER, H. R., surgeon. To report at Washington, D. C., for special temporary duty. May 13, 1904.

WOODWARD, R. M., surgeon. Granted leave of absence for three months from June 14. May 13, 1904.

EAGER, J. M., passed assistant surgeon. Reassigned to duty at the port of Naples, Italy, effective March 25, 1904. May 14, 1904.

FRANCIS, EDWARD, assistant surgeon. To proceed to Martinsburg, W. Va., for special temporary duty. May 11, 1904.

BURKHALTER, J. T., assistant surgeon. Ten days' extension of leave of absence, granted by bureau telegram of May 9, 1904, revoked. May 17, 1904.

ALEXANDER, E., acting assistant surgeon. Granted leave of absence for seven days from May 19. May 17, 1904.

KENNARD, K. S., acting assistant surgeon. Granted leave of absence for fourteen days from May 22. May 17, 1904.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for four days from May 31. May 19, 1904.

WALKLEY, W. S., acting assistant surgeon. Granted leave of absence for nine days from May 24. May 19, 1904.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for four days from May 24. May 18, 1904.

CARLTON, C. G., pharmacist. Granted leave of absence for thirty days from June 1. May 12, 1904.

BIERMAN, C. H., pharmacist. Granted leave of absence on account of sickness, for one day (May 9). May 13, 1904.

VAN NESS, G. I., Jr., pharmacist. Granted leave of absence for thirty days from June 1. May 17, 1904.

BOARDS CONVENED.

Board convened to meet at Baltimore, Md., May 18, 1904, for the physical examination of cadets in the Revenue Cutter Service. Detail for the Board: Surgeon H. R. Carter, chairman; Assistant Surgeon C. W. Wille, recorder.

Board convened to meet at Stapleton, N. Y., May 18, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon Preston H. Bailhache, chairman; Passed Assistant Surgeon A. C. Smith, recorder.

Board convened to meet at Washington, D. C., May 18, 1904, for the physical examination of applicants for appointment in the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

RECENT DEATHS.

CHARLES WARREN WHITE, M.D., M.M.S.S., died in Fairhaven, May 15, 1904, aged forty-four years.

THOMAS J. FITZMAURICE, M.D., of Paterson, N. J., died on May 20, from cancer of the liver. He was thirty-five years of age, and was graduated from Bellevue Hospital Medical College, New York, in 1891. At the time of his death he was a member of the Paterson board of aldermen.

SOCIETY NOTICES.

AMERICAN DERMATOLOGICAL ASSOCIATION. — The twenty-eighth annual meeting of the American Dermatological Association will be held at Niagara Falls, June 2 and 3, at the International Hotel.

CHARLES J. WHITE, M.D., Secretary.

ASSOCIATION FOR THE STUDY AND CONTROL OF TUBERCULOSIS. — A meeting will take place in Atlantic City on Monday evening, June 6, at 8 o'clock, in the Public School Building, for the organization of the National Association for the Study and Prevention of Tuberculosis. A Constitution and By-Laws will be submitted by the committee in charge.

BOOKS AND PAMPHLETS RECEIVED.

Fifth Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts for the year ending September 30, 1903.

The Hayfield Mower and Scythe of Progress. By the Mower-Man. Vol. I, Nos. 1 to 26. Boston: The Hayfield Mower, 1904.

The Mothers' Manual. A Month by Month Guide for Young Mothers. By Emelyn Lincoln Coolidge, M.D. Illustrated. New York: A. S. Barnes & Company, 1904.

Adolescence. Its Psychology and its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education. By G. Stanley Hall, Ph.D., LL.D. Vols. I and II. Illustrated. New York: D. Appleton & Co., 1904.

The Closure of Laparotomy Wounds as practised in Germany and Austria. Including Detailed Methods and Views communicated by over Fifty Leading Surgeons. Edited and translated by Walter H. Swaffield, F.R.C.S. Ed., M.D. Ed. Philadelphia: P. Blakiston's Son & Co., 1904.

Department of the Interior, Bureau of Government Laboratories. Biological Laboratory. Entomological Division. Bulletin No. 1. Preliminary Bulletin on Insects of the Cacao. Prepared especially for the benefit of Farmers. By Charles S. Banks, Manila, 1904.

The Decrease of Consumption in New England. By Dr. S. W. Abbott, Boston, 1904.

A Manual of Fever Nursing. By Reynold Webb Wilcox, M.A., M.D., LL.D. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1904.

Additional Papers on the Blood. By Edward T. Williams, M.D. A Sequel to Studies on the Leucocytes. Reprint.

The Shattuck Lecture. The Changes in the Spinal Cord and Medulla in Pernicious Anæmia. By Frank Billings, M.D. Reprint.

Twenty-sixth Annual Report of the State Board of Health of the State of Connecticut for the year 1903. New Haven, Conn., 1904.

A System of Practical Surgery. By Prof. E. von Bergmann, M.D., Prof. P. von Bruns, M.D., and Prof. J. von Mikulicz, M.D. Vol. II. Translated and edited by William T. Bull, M.D., and Carlton P. Flint, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co., 1904.

Original Articles.

A STUDY OF CERTAIN CASES OF SARCOMA OF THE LONG BONES FROM THE MASSACHUSETTS GENERAL HOSPITAL CLINIC.

BY CHARLES L. SCUDDER, M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

The final results in this series of cases under the care of certain members of the surgical staff represent all those patients who could be traced or whose records were complete after several years. Most of these cases came to the hospital after having had the disease for some months, and in whom there was no doubt as to the diagnosis. This group of cases is made up of unselected instances of sarcoma of the long bones. I have avoided speaking of any of the cases which are well to-day as "cured cases," no matter how long a time may have elapsed since the operation for the removal of the disease, for it has seemed to me hardly accurate to place a time limit within which any case may be regarded as cured, for it is common knowledge that metastases occur after many months or several years. There is one case recorded in which metastases became evident even five years following the operation.

I was led to a study of these cases because of the findings offered by several authors (König, Kramer, Mikulicz, Wiesinger) in demonstration of the proposition that there is a group of malignant tumors of bone which should be treated by excision and preservation of the extremity, rather than by amputation. There is no doubt that the sarcomata of bone are of varying degrees of malignancy. Should these differences in malignancy influence surgical treatment?

In this series of cases there were five giant-cell sarcomata.[1] All of these are at present in good health, three years and four months, three years and two months, three years and two months, six years, fifteen years, respectively, after operation. In one of these cases the sarcoma was in the upper third of the humerus and an amputation was done at the shoulder joint. In two of the cases the sarcoma was in the tibia. In one of these resection was done and in one amputation of the thigh. In one of these cases the lower end of the ulna was involved. In this case resection was done. In one case the lower end of the radius was involved and amputation above the elbow was done.

In the remaining ten cases the disease was located in the lower end of the femur once, and this case died with metastases in the lungs about thirteen months after the operation. The disease was in the tibia four times. In three of these amputation was done, in one a partial operation.

Of the three amputated cases, one was in good health two years and five months after the operation; a second was in good health three years and six months after the operation; and a third died with lung metastasis one year and three months following the operation. The case of partial operation is living, five years and three months having elapsed since the operation. There is local recurrence in the wound and the general health is poor.

The sarcoma was located four times in the humerus. In all these cases amputation at the shoulder was done. One of the cases did not reply. In one case there was a recurrence in the axilla ten months after operation. In another case death occurred from metastasis in the lung two years and four months following operation. In still another, death occurred from metastases in the lung.

In one of these ten cases the sarcoma was in the forearm. Amputation of the upper arm was done. A local recurrence took place in the stump and an amputation at the shoulder joint was done. This patient was well four years after operation and died then of acute pneumonia.

To summarize this group of cases:

There were *six amputations at the shoulder joint* for sarcoma of the humerus. There was no reply from one case. There was recurrence in the axilla in one case. There was one case of giant-cell sarcoma, in apparent health three years and four months after the operation. There were metastases in the lungs in two cases and probably in a third.

There were *four amputations of the thigh* for sarcoma of the tibia. One giant-cell sarcoma, in good health six years after the operation. One lived two years and five months and was drowned. One is living three years and six months, in good health. One died of metastases in the lungs.

There was *one amputation at the hip joint* for disease in the lower end of the femur. This patient died thirteen months after the operation.

There were *two resections*,— one of the tibia, one of the ulna; each a case of giant-cell sarcoma. Each is at present well,— one three years and two months after the operation and the other also three years and two months after the operation. There was *one partial operation* upon the tibia. This case is in fair health five years after the operation, although a probable recurrence is present in the leg; there was *one amputation above the elbow* in perfect health fifteen years later.

In case fourteen the small metastatic foci discovered at autopsy were not only not detected in the very careful examination of the patient previous to operation, but they were not even suspected; death probably was due to shock and not to these metastases. Cases six, eight and thirteen all died with lung metastases, thirteen, fifteen and twenty-eight months, respectively, after operation. Case fifteen is said to have died of acute pneumonia; it is not known by autopsy whether or not there was lung sarcoma in this case; it was thought at the time, by the attending physician, to be a simple acute pneumonia. There were no metastases in the giant-cell sarcoma cases.

[1] The microscopical preparations from four of these cases have been recently examined, with special reference to this paper, by Dr. J. H. Wright, Director of the laboratory of the Massachusetts General Hospital.

Dr. Wright states that they all have essentially the same histological structure; that they are all typical examples of that definite form of sarcoma with giant cells, which is the typical giant-cell sarcoma of the textbooks, and which may be readily differentiated histologically from other forms of sarcoma with giant cells.

Cases one, two, four, five, six, eight and ten gave a history of trauma to the part in which the new growth subsequently developed; in other words, seven out of fifteen cases gave a history of trauma preceding the appearance of the tumor. The etiological relationship between trauma and the development of sarcoma is an interesting one, but not yet satisfactorily demonstrated.

That there is a difference in the malignancy of the sarcomata of bone has for some time been recognized (König). The giant-cell sarcoma is less malignant than the round- and spindle-cell sarcomata. The series of cases here recorded illustrates this anew. In view of this fact the very important question arises, Is it wise for the surgeon to treat the giant-cell sarcoma of the long bones by an operation less extensive than has formerly been adopted in this type of malignant disease? Hitherto, as illustrated in a number of the cases of this series, the surgeon has removed the extremity well above the disease, making no distinction in his treatment between the giant-cell sarcoma and the more malignant spindle- and round-cell sarcoma. From a study of the facts, emphasized by Kramer[2] in a paper upon the treatment of sarcoma of the hollow bones, and a paper by Jenckel,[3] who studied the sarcoma of the femur, and from the cases reported by Bloodgood, from Halstead's clinic,[4] and from the series of cases here reported from the Massachusetts General Hospital clinic, it seems to me that if the giant-cell sarcoma of a long bone is limited to the bone and is localized in the bone, involving only a small area, a resection or partial operation is justifiable, *vide* Greenough's case; but if the soft parts are in any way involved, or the disease in the bone is extensive and of long duration, that then an amputation is the best treatment; an amputation in the continuity of the bone, if the lower end of the diaphysis is involved, or an amputation at the joint above the disease, if the disease is high in the shaft. Exarticulation at the joint above the disease, at the shoulder or at the hip, is indicated only in those cases in which the disease cannot otherwise be completely removed. I should limit the excision or partial operation to a considerably narrower class than it is limited by Bloodgood. It is true that it has been pointed out that local recurrences after the conservative treatment can be satisfactorily handled. There appears also to be no increase in the likelihood of metastases following local recurrence. A careful study of the evidence presented does not, however, make me enthusiastic for the employment of the partial operation, excepting in the most carefully selected cases. It is always to be kept in mind that metastases may exist, and in the large proportion of late cases coming to the hospital clinic do already exist in the lung, only to make themselves known some time after operation. Exploratory incisions for diagnostic purposes in this group of cases is to be avoided. It is possible that metastases have been occasioned by these exploratory incisions. The x-ray is of great value in diagnosis, particularly early in the development of the disease, and in those cases in which no positive diagnosis has been made. The value of the x-ray in the diagnosis of bone lesions has been especially studied by Dr. E. A. Codman. [See Johns Hopkin Bulletin May, 1903.] The cases of this group are here presented in detail:

[2] Archiv. f. klin. Chirurgie, 1902, Band 7, xvi, p. 792.
[3] Deutsche Zeitschrift f. Chirurgie, 1902, Band 7, xiv, p. 66.
[4] Bulletin of the Johns Hopkins Hospital, May, 1903, p. 134.

CASE I. Woman. Tumor of upper arm, probably malignant. Amputation at the shoulder joint. Recovery. Result three and one-third years after operation.

R. B., fifty-nine years old. Service of Dr. S. J. Mixter. Four months ago, after a fall, she noticed a weakness and limitation of motion of the right arm, which have increased gradually. Three months ago she first saw a swelling of the upper arm, which has increased a little since that time.

Examination finds, at the junction of the middle and upper thirds of the right humerus, a hard fusiform swelling of the bone. The movements of the forearm are limited. The x-ray shows a fusiform swelling of the bone and a thinning of the cortex by pressure of the tumor from within.

Operation. — Amputation at the shoulder joint.

Pathological Report by Dr. Jas. Homer Wright:

Diagnosis. — Myelogenous round-celled sarcoma.

The shaft of the humerus is the situation of a tumor growth, largely replacing the bone so that fracture has occurred. The tumor growth is situated in the upper half of the shaft of the bone and involves a length of the bone about 8 cm. The bone, over a great part of the area involved in the tumor, is somewhat greater in diameter than normal. On sawing through the bone and the tumor in a longitudinal direction, the following appearances are noted: Occupying the marrow cavity of the bone and to a great extent replacing the cortical bone is a tissue which is partly grayish to reddish, translucent and partly dark red in color. The tumor, on section, has a fusiform or oblong outline and measures in the longitudinal direction 8 cm. as before stated. The central portion of the tumor is softer than the periphery, and dark red to blackish, and moist in appearance as from hemorrhage. In consistency the tumor mass is generally soft and somewhat elastic, but not diffluent. It is also somewhat fleshy. It contains no bony spicules. Throughout the greater portion of its length, it pushes before it the remains of the cortical portion of the bone and the periosteum. The cortical bone in this situation is very much thinned, being represented, over a greater portion of the length of the tumor, as spicules, or thin plates, beneath the periosteum. At the upper extremity of the growth the marrow cavity is invaded without distortion of the outward appearances of the bone for a length of a few millimeters. The upper extremity of the growth reaches to about 3 cm. of the anatomical neck. The growth generally can be well separated and differentiated from the marrow and from the cortical bone. It can also be sharply differentiated from the spongy bone, which abuts upon it near the surgical neck at the upper extremity of the growth.

Microscopical Examination. — Sections of the tissue hardened in Zenker's fluid and afterward decalcified. The tumor tissue consists of closely packed, medium-sized polyhedral cells with a moderate amount of cytoplasm. The polyhedral shape of the cells seems to be due to mutual pressure, and it seems possible that in the fresh state they were spherical. There is little or no stroma. Here and there among the cells are spaces more

or less completely lined with thin cells, resembling endothelium. The nuclei of the tumor cells vary somewhat in size, are generally oval in shape and do not contain a large amount of chromatin. The nuclear membrane is very thin and not prominent. The cells are clearly not plasma cells and not like the cells described by J. H. Wright in a case of so-called "Multiple Myeloma."[5]

The thin and more or less perfect shell of bone investing the tumor seems to be, not the remains of the original bone, but a new formed bone.

End Result. — Three years and four months after the operation the patient replies to inquiry, "I am used up by rheumatism and pleurisy for a year." Friends of the patient write that her general health is excellent. There is no recurrence of the disease.

Case II. Child; girl. Injured knee; tumor of upper end of the tibia; malignant disease suspected. Partial operation at two different times. Recovery. Well after three years.

L. T., service of Dr. W. M. Conant; sixteen years old. One year ago she fell downstairs striking the left knee. Two months ago she noticed a small hard swelling just below the left knee, over the tibia. There has been tenderness in this region for eight months; the swelling has increased very slowly. She has lost no weight, but rather gained in weight.

Examination. — Well-developed and well-nourished girl. Anteriorly just below the knee is a swelling of the tibia 3 by 2 inches in size. This swelling is tender. The overlying skin is normal in appearance. Two small glands are felt in the groin.

Operation. — At operation the external layer of bone over the tibia was found to be a mere shell. Beneath the bone was a cavity the size of an egg. The softened bone was chiselled away, the material within was curetted out, the cavity remaining was wiped dry and painted with tincture of iodine and packed with iodoform gauze. The pathologist reported giant-celled sarcoma.

One month later a second curetting was done and the material removed at this time was reported to show no evidence of malignant disease. One year later the wound is reported as entirely closed for six months previously, with no evidence of malignant disease. She has some little pain at the seat of the wound.

Pathological Report by Dr. W. F. Whitney:

Diagnosis. — Typical giant-celled sarcoma.

A few small bits of bone and soft tissue received for examination.

Microscopical examination shows typical giant-celled sarcoma.

End Result. — Three years and two months after the first operation and three years and one month after the second operation the general health is good, and there is no trouble with the wound. She considers herself well.

Case III. Young adult; woman. Tumor of the lower end of the ulna. Excision of tumor. Recovery. No recurrence three years and two months after operation.

M. C., twenty-four years old. Patient of Dr. R. B. Greenough, service of Dr. J. C. Warren. For three months there has been soreness in the wrist. On the ulna side of the right wrist is a hard swelling. There is no redness of the skin. Over the swelling there is some tenderness on deep palpation. The bone feels thickened for a distance of 2 or 3 inches. The x-ray shows a disease of the head of the ulna. There is a suggestion of fluctuation over the swelling.

Operation. — An excision of the tumor was done. There has been no recurrence of this growth, three years and two months after operation.

Pathological Report by Dr. James Homer Wright:

Diagnosis. — Typical giant-celled sarcoma.

A portion of the ulna about 5 cm. long, including its lower extremity, received for examination. The lower extremity is about twice the normal size and is the seat of a neoplasm which largely replaces the substance of the bone, but does not extend beyond the periosteum. It extends only a very short distance into the shaft.

Microscopical examination shows typical giant-celled sarcoma.

End Result. — There has been no recurrence after three years and two months. The patient is in good health.

Case IV. Young adult; man. Injury to knee; tumor of head of the tibia; malignant growth. Amputation of thigh. Recovery; at present general health good, six years after operation.

R. O., twenty-four years old. Service of Dr. S. J. Mixter. Sixteen months ago he fell while running upstairs and struck his knee right. Three or four months later pain appeared in the knee. Six months ago he fell on the same knee. The knee was incased in plaster of Paris. Since then the pain has been getting worse.

Examination. — There is a swelling on the outer side of the head of the tibia about 2 inches in diameter. This swelling is hard and bone-like. Just above the tumor there is a semi-fluctuating spot. A button of bone was removed from the tibia and a red, soft, pulsating mass was discovered inside a thin shell of bone. The diagnosis was made of a giant-celled sarcoma. Patient was discharged untreated as he refused amputation. He received the Coley treatment for three weeks.

Amputation on account of the great vascularity of the tumor and because its growth was apparently not controlled by the toxins.

Pathological Report by Dr. J. H. Wright:

Diagnosis. — Giant-celled sarcoma.

Microscopical examination of a section of the neoplasm shows typical giant-celled sarcoma like that of an epulis.

End Result. — Six years after operation general health is good. There is no trouble with the stump wound. Has had some pain in hip and back when lying a long time at night. Has had this aching for a long time; otherwise perfectly well.

Case V. Man. Tumor lower end of the radius. Curetting and cauterization; then amputation above the elbow. Well fifteen years later.

C. D. S., thirty-three years old. Service of Dr. C. B. Porter. One month previously wrenched his hand, which swelled considerably and was painful for a few days. For two weeks past the hand continued swollen and more pain has been felt, sufficient to keep him awake.

Examination finds a small diffused swelling of the lower end of the radius, near the wrist. The swelling is tender to touch. There was an indistinct sense of fluctuation and pulsation of the swelling. The swelling was aspirated. Nothing was obtained from the aspirating needle.

Operation 1. — Whole lower end of the radius was occupied by a semi-solid mass of vascular medullary tissue. Whole cavity was curetted out and cauterized

[5] "Contribution to the Science of Medicine dedicated by his Pupils to William Henry Welch upon the Twenty-fifth Anniversary of his Doctorate and Volume IX of the Johns Hopkins Hospital Reports."

with the actual cautery and packed with iodoform gauze.

Operation II. — Amputation two days later above the elbow joint.

Pathological Report by Dr. W. F. Whitney:

Soft, slightly translucent medullary looking masses. Microscopical examination showed it made up of a mass of large oval cells with a slight fibrillated or granular intercellular substance between them, and large multinucleated giant-cells.

Diagnosis. — Myelogenous giant-cell sarcoma.

End Result. — The patient is alive and perfectly well fifteen years after operation.

CASE VI. A young adult. Injury to knee; tumor of femur, close to knee joint. Amputation at hip joint. Recovery.

J. C., nineteen years old. Service of Dr. J. C. Warren. Three months ago he stepped in a hole and wrenched his knee. After this he had slight pain in the knee, in the morning, on attempting to straighten the leg. He was gradually unable to completely straighten the leg and for two weeks past he could just bend the leg to a right angle. He has been on crutches for six weeks.

Examination. — The left leg is bent at a right angle. Upon attempting to passively extend the leg he complains of pain. There is a swelling over the external condyle of the femur. The skin over this swelling is slightly blue, tender, and there is a sense of fluctuation. There are a few glands to be felt in the left groin. The tumor is regarded as malignant.

Operation. — Amputation at the hip joint. Recovered from the operation and returned to his home.

Pathological Report by Dr. W. F. Whitney:

Diagnosis. — Osteo-sarcoma originating in the trabeculæ of the bone.

Fragments removed from a hemorrhagic new growth apparently originating in the neighborhood of the condyles of the femur and just above the knee posteriorly.

Microscopic examination showed the trabeculæ of bone almost entirely decalcified and replaced by a growth of irregular round cells, many of them of large size and occasionally distinctly spindle shaped. There was extensive hemorrhagic areas among these which seem to have originated in the medullary cavity of the bone and infiltrated this new growth, which, in places, was very necrotic. The cells of this new growth have neither the characteristic shape of cartilage, nor of bone corpuscles, but in places it seems as if they originated in a proliferation of the bone corpuscles.

The lymph nodes removed from the groin showed nothing but a proliferation of the endothelium of the lymph spaces to account for their increased size.

The End Result. — This boy could not be found after careful inquiry.

CASE VII. Child; a boy. Tumor of the head of the tibia. Amputation of the thigh. Recovery. Accidental death two years and five months after operation.

R. L. T., fifteen years old. Service of Dr. John Homans. Three months ago there was tenderness below the right knee over the tibia. A tumor developed at this point. For two months he has been unable to walk upon his leg. He has lost considerable flesh.

Examination found a well-developed but somewhat emaciated boy. A globular swelling is seen just below the head of the right tibia; the circumference of the right leg at the seat of the tumer is 12¾ inches; the left leg 11¼ inches. The tumor is soft, elastic, and the skin is not adherent to it. Tumor is apparently of the bone; tumor extends back toward the popliteal space but is most prominent in front at the head of the fibula. The surface temperature of the tumor is considerably increased. The glands of the right groin are slightly enlarged.

Operation. — Amputation of the thigh just above the knee. A bit of the tumor removed before the amputation was examined and found to be a large, round-celled sarcoma.

Pathological Report by Dr. W. F. Whitney:

Diagnosis.— Round-celled sarcoma, probably of periosteal origin.

A piece removed by the Mixter punch, showing the growth to be composed of a solid mass of large round cells with a little intercellular substance, here and there; buried in the growth were spiculæ of bone, evidently extensively destroyed.

End Result. — This boy wore an artificial leg, had no trouble from the stump and was always well after the operation. He lived two years and five months after the operation and then was drowned.

CASE VIII. Young adult; man. Fracture of leg below the knee; tumor at seat of fracture; malignant. Amputation of thigh. Recovery; lived one year and three months.

J. D., thirty-three years old. Service of Dr. F. B. Harrington. Three and one-half years ago the left leg was broken just below the knee. He was then laid up for three or four months. Six months later he noticed a lump over the left tibia anteriorly, which has been growing slowly ever since. There is not much pain. Eight weeks ago this swelling was incised by a country doctor, and the bony mass scraped. The wound has never healed. There is considerable discharge and hemorrhage from this wound.

Examination. — Well-developed and well-nourished. The leg is considerable enlarged just below the knee. The tibia is increased in size. There is a large ulcerating surface which bleeds easily, at the center of this swelling. The skin is considerably discolored. The skin is infiltrated with firm nodules in the immediate vicinity of the ulcerated part. No enlarged glands can be felt in either groin or along the iliac vessels.

Operation. — Amputation of thigh.

Pathological Report by Dr. William F. Whitney:

A soft, grayish growth filling a cavity which it had apparently excavated in head of the tibia, breaking through the articulating surface and infiltrating the tissues about the joint. Spindle-celled sarcoma.

End Result. — He lived one year and three months. He died with " the disease " in the other thigh and leg. He had much pain for six months previous to his death.

CASE IX. Young adult; woman. Tumor of the leg below the knee; malignant. Amputation of the thigh. Recovery; good health at present.

K. M., twenty-six years old. Service of Dr. A. T. Cabot. Five months ago she first noticed a swelling of the left leg extending from the knee to the ankle. Four months ago the upper third of the tibia began to enlarge. There was great pain of a grinding character, particularly at night. One month ago she was obliged to give up work because of the pain and loss of sleep. A bit of the growth removed from the head of the tibia was found to be sarcomatous.

Examination. — The upper third of the right tibia is uniformly enlarged; there is no fluid in the knee joint; there is no glandular enlargement. The x-ray shows a bony thickening of the upper end of the tibia. The center of the tumor is of great density.

Operation. — Amputation above the condyles of the femur.

Pathological Report by Dr. W. F. Whitney:

Diagnosis. — Osteo-sarcoma.

The head of the tibia invaded by a new growth which had increased it to about the size of the fist. The section showed a very dense bone replacing the spongy tissue and filling the medullary cavity for the distance of several centimeters.

Between it and the medullary cavity was a zone of grayish, opaque tissue of distinctly different character from the medulla and composed microscopically of a mass of large round cells with a little intercellular substance.

Enlargement of the bone was chiefly caused by an irregular deposit of new bone. On the outside of the outer surface was a zone of the same soft grayish tissue seen in the medulla and composed of the same structure.

End Result. — Three years and six months after the operation the patient is in good health, with no local trouble.

Case X. Adult; male. Fracture of leg; injury to seat of fracture. Tumor at seat of fracture; malignant. Partial operation; recovery; general health good.

M. B., fifty years old. Service of Dr. J. W. Elliot. Nine years ago the left leg was broken at the junction of the lower and middle thirds by the kick of a horse. Four years ago he was kicked by a horse in the same place and has been unable to put any weight upon the leg for some time. One year and a half ago he noticed a swelling over the site of the old fracture; this swelling increased slightly, was moderately tender, but not painful. A little less than a year ago the surface of the swelling ulcerated. The glands in the groin have been tender and somewhat enlarged; he has had some pain at night in the leg.

Examination. — Marked thickening of the left leg in the lower third. The skin over this area is bluish in color. At the center of this bluish and discolored area is an ulcerating and fungus mass about the size of a silver dollar. The glands in the groin are not particularly enlarged.

Operation. — An elliptical area of skin surrounding the disease was incised and granulation tissue was removed with the curette; bits of diseased bone and old granulation tissue were found in the depths of the wound; the diseased parts were removed with the bone chisel and curette; the wound was cleansed with peroxide and corrosive. The diagnosis of osteoid sarcoma was made.

Pathological Report by Dr. James Homer Wright:

Diagnosis. — Osteoid sarcoma.

The sections of the tissue received for examination Aug. 31, 1898, show a sarcomatous neoplasm identical with that in the specimen described below.

Specimen received Sept. 4, 1901. The tibia in its lower third is greatly thickened and is the seat of a tumor growth occupying the narrow cavity over a length of perhaps 8 or 9 cm. This tumor growth extends into the shaft of the bone and involves the skin on the anterior aspect of the leg where there is considerable ulceration.

The tumor growth consists of a firm, grayish, translucent tissue in parts of which a few fine, bone-like spicules are perceptible to the touch. At the periphery of the tumor, where it impinges upon the thickened bone, the tumor tissue occupies rounded depressions, with smooth walls, in the bone.

Microscopical examination of hardened sections shows that the new growth consists essentially of a tissue that at first sight resembles spongy bone. A large part of the tissue consists of closely packed cells, which cells are divided into larger and smaller groups by columns and trabeculæ of a tissue very suggestive of the trabeculæ of spongy bone and regarded as a form of osteoid tissue. These trabeculæ are composed of a fibrillary substance staining with eosin in which well separated, elongated, vesicular nuclei are distributed. With Mallory's connective tissue stain these trabeculæ take a deep blue coloration and are seen to consist mostly of fibrillary substance. In one of the sections the tissue of the trabeculæ is seen to become continuous with a small mass of bone. The other constituent of the tumor lying between the trabeculæ consists of closely packed cells. These cells contain elongated faintly staining vesicular nuclei of good size and a very small amount of cytoplasm, which is seen with difficulty as a more or less reticular substance between the nuclei. The nuclei show a marked tendency to be arranged with their long axes parallel to one another.

End Result. — Five years after operation the wound was still open. The general health was good except for a sore upon the leg. During the past three months — that is, three years since the first operation — he has had more or less trouble with the wound and is not feeling well. Patient will not consent to amputation.

Case XI. Young adult. Tumor of humerus, thought to be malignant. Amputation at the shoulder joint; recovery.

L. S., sixteen years old. Service of Dr. J. C. Warren. One year ago the patient first noticed a swelling of the right arm above the elbow. Six weeks ago this swelling began to be painful. The swelling has grown steadily larger.

Examination finds the entire humerus uniformly much enlarged. There are glands in the axilla.

Operation. — Amputation at the shoulder joint. The mass of new growth is found to infiltrate the muscles without a sharp boundary line. The periosteum is very much thickened. The medullary cavity is involved by the new growth. The axillary glands are also involved.

Pathological Report by Dr. W. F. Whitney:

Diagnosis. — Large round-celled sarcoma.

A spindle-shaped growth surrounding the humerus at its middle and about 6 cm. in diameter. It is of a grayish, slightly opaque, homogeneous surface and infiltrates the muscles without a sharp boundary line. The shaft of the bone is roughened but not destroyed, and in places shows a distinct periosteal thickening. In the medullary cavity is a similar new growth. The axillary lymph glands are also infected.

Microscopic examination shows it to be a large, round-celled sarcoma.

End Result. — No reply received after careful inquiry.

Case XII. An adult. Swelling of the whole upper extremity, thought to be a periostitis. Amputation at the shoulder joint; recovery.

J. I. C., thirty-three years old. Service of Dr. H. H. A. Beach. Sharp shooting pains in the limbs for many years. Three months ago this pain was most marked in the right upper extremity. The pain was sharp, localized at different times in the elbow, forearm and upper arm. Four weeks ago the arm began to swell; there were soreness and tenderness.

Examination finds the whole upper extremity swollen. There is marked tenderness on the inner side of the arm above the elbow. The superficial veins are prominent over the arm. The disease is thought to be a periostitis. There is limitation of motion at the elbow-joint due to the swelling of the upper arm.

Operation. — Amputation at the shoulder joint. Axillary vein involved in malignant thrombus. Pronounced malignant by the pathologist. Recurrence in the axilla after a little over a month. The Coley serum was used without benefit after the operation.

Pathological Report. — Pronounced malignant by the pathologist. The axillary vein was filled with a thrombus which was thought by the pathologist to be malignant. No glands were found enlarged in the axilla.

End Result. — In ten months recurrence in axilla.

CASE XIII. Woman. Tumor of the upper arm. Partial operation; Coley treatment; amputation at the shoulder joint; recovery. Died three months ater from lung metastases.

C. O., thirty-eight years old. Service of Dr. F. B. Harrington. Sixteen months ago she had pain in the right arm. Six months later she was operated upon for tumor of the soft parts and later the humerus was curetted. An x-ray was taken then and the patient told that she had malignant bone disease, and a radical operation was advised. This was refused and she was treated in New York by the Coley serum. She now has great pain at night, which keeps her awake. The swelling of the arm is slowly increasing.

Examination finds, upon the outer aspect of the upper arm, a little below the head of the humerus, a hard, firm swelling, not tender, not movable, and apparently connected with the bone. The x-ray shows a thickening of the bone like a periostitis.

Operation.— Amputation at the shoulder joint. One year after the amputation re-entered the hospital for a short time, with some trouble with the chest. Two years after the operation re-entered the hospital for recurrence in the stump.

Microscopical examination of this specimen showed a spindle-celled sarcoma.

A partial operation was done. The patient died three months later, evidently from metastases in the lung and stomach.

Pathological Report by Dr. James Homer Wright:

Diagnosis. — Periosteal fibro-sarcoma with metastasis in a regionary lymphatic gland.

Dissection shows a tumor involving the periosteum of the humerus and the insertion of the deltoid.

This tumor consists of an elongated mass continuous with the periosteum, about 6 cm. in length and 2½ cm. in greatest width. It is not sharply defined from the surrounding muscular tissue. It has been partly separated from the bone by the surgeon. On section through the tumor in a longitudinal direction, it is seen to consist of a grayish, translucent, gristle-like, fibrillated tissue fading out into the muscular tissue like scar tissue. Where it has been in apposition with the bone the tumor tissue becomes softer and reddish in color. The denuded bone surface is somewhat irregular, but presents no necrosis nor evident invasion by the neoplasm. At the lower extremity of the growth and just outside of the periosteum is a sharply outlined nodule about 7 mm. in greatest diameter and composed partly of a dark red and partly of a grayish translucent tissue.

The shaft of the bone contains normal marrow.

Microscopical examination of sections of the growth, hardened in Zenker's fluid, shows the neoplasm to consist of cells and a relatively large amount of connective tissue. The cells vary considerably in size and shape and very atypical in appearance. In places the cells are very numerous and form more or less well defined islands in the midst of the connective tissue. In other places the cells are scattered throughout the connective tissue. The connective tissue itself, in places, forms the most prominent feature of the growth and is very dense and coarse.

Sections of two small lymphatic glands, presumably from the axilla, show in one of them a small secondary tumor, identical, in structure, with that of the growth on the bone.

End Result. — About three months after the operation she died. The wound appeared healed and normal. There were evidences of trouble with the lungs and stomach, suggesting very strongly that metastases had occurred in these situations.

CASE XIV. A boy. Tumor of the shoulder region; malignant. Amputation at the left shoulder joint; died.

A. L., fifteen years old. Service of Dr. C. B. Porter. A tumor of the shoulder was first noticed two years ago. This has grown slowly and painlessly.

Examination finds a poorly-nourished, anemic boy; he has lost flesh and strength during the past two years. The region of the left shoulder is occupied by a large, round, smooth mass which completely obliterates all the outlines of the shoulder joint. The overlying skin is white and the superficial veins are enlarged. The mass involves not only the shoulder and the scapula but also the tissues below and above the clavicle. The circulation of the left arm is poor; there is slight numbness of the left upper arm and forearm.

Operation.— Amputation at the left shoulder.

Pathological Report by Dr. W. F. Whitney:

Diagnosis. — Osteo-sarcoma (round celled).

A lobulated dense new growth, which had entirely replaced the scapula and upper part of the humerus. On section, a portion of it was soft, rather myxomatous looking, while the rest was made up of an osteoid tissue with little islands of cartilage here and there. The mass measured 18 by 21 by 24 cm. and weighed 7,000 gm.

The autopsy, by Dr. J. H. Wright, showed a small metastasis in each lung.

CASE XV. Woman. Tumor of lower end of the radius and ulna. Amputation of the forearm. Recurrence one year and a half later in the stump. Amputation at the shoulder joint. Recovery. Lived six years after the first operation. Died of acute pneumonia.

T. A. P., sixty-seven years old. Service of Dr. J. W. Elliot. Two years and a half ago there was pain in the thumb. Two months later the wrist began to swell and throb. To-day there is a tumor involving the ends of the radius and ulna. The pathologist, Dr. Mallory, pronounces it to be osteo-sarcoma.

Operation No. I. — Amputation above the elbow joint.

A year and a half after the first pain the arm began to swell again and has slightly increased in size.

Examination finds a well-preserved old woman. The stump of the amputated arm is the size of a large cocoanut. The skin over the stump is tense, tender, and the surface temperature is increased. The skin is ulcerated in two places; there are no glands in the axilla or above the clavicle.

Operation No. II. — Amputation at the shoulder joint, two years after the first operation.

Pathological Report. — There is unfortunately no complete descriptive pathological report. Dr. F. B. Mallory reported, after an examination of the first specimen only, that the tumor was an undoubted osteo-sarcoma.

End Result. — The patient lived six years after the first operation. She then died of acute pneumonia.

SARCOMA OF THE LONG BONES. MASSACHUSETTS GENERAL HOSPITAL CASES.

CASE.	AGE.	OPERATING SURGEON.	SEX.	REGION.	KNOWN DURATION OF GROWTH.	PATHOLOGICAL REPORT.	OPERATION DONE.	IMMEDIATE RESULT.	REMOTE RESULT.
1 R. B.	59	S. J. Mixter	F.	Humerus, upper third	4 mos.	Myelogenous round-celled sarcoma	Amp't at shoulder joint	Recovery	3 yrs. 4 mos., rheumatism, otherwise fair health.
2 L. T.	16	W. M. Conant	F.	Tibia	2 mos.	Giant-celled sarcoma	Resection	Recovery	3 yrs. 2 mos., good health, no recurrence.
3 M. C.	24	R. B. Greenough	F.	Ulna, lower end	3 mos.	Giant-celled sarcoma	Resection	Recovery	3 yrs. 2 mos., no recurrence.
4 R. O.	24	S. J. Mixter	M.	Tibia	13 mos.	Giant-celled sarcoma	Amp't thigh	Recovery	6 yrs. 3 mos., good health.
5 C. D. S.	33	C. B. Porter	M.	Radius Forearm	1 mos.	Giant-celled sarcoma	Partial operation, amp't above elbow	Recovery	15 yrs., perfect health.
6 J. C.	19	J. C. Warren	M.	Femur, lower end	3 mos.	Round-celled sarcoma	Amp't at the hip joint	Recovery	Died about 13 mos. Lung metastases.
7 R. L. T.	15	John Homans	M.	Tibia	3 mos.	Round-celled sarcoma	Amp't thigh	Recovery	2 yrs. 5 mos., good health. Drowned.
8 J. D.	33	F. B. Harrington	M.	Tibia	36 mos.	Spindle-celled sarcoma	Amp't thigh	Recovery	1 yr. 3 mos., died, metastases.
9 K. M.	26	A. T. Cabot	F.	Tibia	6 mos.	Round-celled sarcoma	Amp't thigh	Recovery	3 yrs. 6 mos , good health.
10 M. B.	50	J. W. Elliot	M.	Tibia	18 mos.	Osteoid sarcoma	Partial operation	Recovery	After 5 yrs. 3 mos., health poor; local trouble at operation site.
11 L. S.	16	J. C. Warren	M.	Middle Humerus	12 mos.	Large, round celled sarcoma	Amp't at shoulder joint	Recovery	No reply.
12 J. I. C.	33	H. H. A. Beach	M.	Humerus	3 mos.	Sarcoma	Amp't at shoulder joint	Recovery	Recurrence axillary in 10 mos.
13 C. O.	38	F. B. Harrington	F.	Humerus, upper third	16 mos.	Fibro-sarcoma	Amp't at shoulder joint	Recovery	2 yrs. 4 mos., died, metastases in lungs.
14 A. L.	15	C. B. Porter	M.	Humerus, upper third	24 mos.	Round-celled sarcoma	Amp't at shoulder joint	Died	Autopsy; metastases in lungs.
15 T. A. P.	67	J. W. Elliot	F.	Forearm	6 mos.	Osteo-sarcoma	Amp't upper arm Amp't shoulder joint	Recovery	4 yrs. after last operation died of acute pneumonia.

DISINFECTION OF THE CLINICAL THERMOMETER.

BY FRANCIS P. DENNY, M.D., BROOKLINE, MASS.

In a letter to the Philadelphia *Medical Journal*, Dec. 15, 1903, Dr. W. H. Dyer called attention to a method of disinfecting the clinical thermometer by putting a few drops of formalin in the thermometer case. As this convenient method has not received the recognition that it deserves it has seemed well to again call attention to it, and report the results of some tests of its efficiency.

If two or three drops of formalin (40% solution of formaldehyde) are put in the thermometer case, they are taken up by the absorbent cotton usually kept at the end of the case, which will remain moist for a number of days. Formaldehyde gas is freely given off from the formalin, but is confined in the air-tight chamber of the case. If the formalin has been freshly added the surface of the thermometer when taken out of the case is often covered with minute sweat-like drops of fluid, showing the high humidity. The small size of the chamber, the high humidity, and the high temperature if the thermometer is carried in the vest pocket, furnish conditions very favorable for the disinfectant action of formaldehyde.

The tests which are here reported show that the disinfectant action of the formalin remains active for several weeks or as long as the pungent, irritating odor of the gas is marked. In practice it is well to add the formalin about every two weeks or oftener if the odor seems at all weak, and the cap should be kept on the case when the thermometer is being used in order to prevent evaporation. The thermometer should be washed in water both before and after using. If by mistake the thermometer is put directly into the patient's mouth, the taste is somewhat unpleasant but no serious effects result.

Where the thermometer has been used for a patient known to have a contagious disease it is best to disinfect it outside the case, or at least fresh formalin should be added and the thermometer exposed to the gas a longer time than usual (several hours) before being used again. This method should not be employed when it is desired to use the same thermometer within a few minutes for another patient; for example, in hospitals and dispensaries, or when a physician is attending two patients in the same family. Under such circumstances disinfectant solutions should be used.

Tests. — The organisms used and the number of tests made with each were as follows: *Staphylococcus pyogenes aureus* 4, P. *typhosus* 3, B. *subtilis* (spores) 3, B. *diphtheriæ* (pure) 4, mixed cultures from throats of diphtheria patients 8; and in 3 tests the thermometer was infected by putting it for a moment in the mouth of a healthy person.

When cultures were used a few drops of an emulsion of the growth were put on a sterile glass slide and a clinical thermometer, or a glass rod of similar size, was rubbed in this. When partially dried the thermometer was put into the case with the infected end uppermost — that is, away from the moist cotton — so that the disinfection would have to be gaseous rather than from the direct action of the solution. For a control a second thermometer was similarly infected and

put in a case in which there was no formalin. Both cases were then put in the vest pocket. The exposure to the gas varied from five to twenty minutes; in most cases it was between ten and fifteen minutes. On being removed from the case the thermometer was emersed in a tube of bouillon and rinsed, in order to remove any traces of the disinfectant that might have been carried over from the case. The thermometer was next rubbed over the surface of a serum or agar tube, and then dropped into a fresh bouillon tube. The control thermometers were similarly treated, and all the tubes were then incubated.

All the controls showed growth. Of the exposed thermometers three showed growth, these having all been exposed in cases in which the formalin had been added several weeks before, and where the odor of the gas was very faint. That the absence of growth in the other cultures was not due to the presence of a small amount of the disinfectant which had been carried over from the thermometer case, was shown by the fact that there was growth in them when the same cultures were inoculated from the controls.

The following table shows in detail the tests which were made and the results obtained:

Test No.	Bacteria used in Test.	Minutes Exposed.	Result.	Remarks Formalin in the Thermometer case.
1	B. Diphtheriæ (pure)	17	—	3 weeks
2	" "	15	—	3 "
3	" "	15	—	3½ "
4	" "	12	—	Faint odor
5	" (mixed)	10	—	10 days
6	" "	10	—	2 weeks
7	" "	10	—	2 "
8	" "	15	—	4 "
9	" "	12	—	4½ "
10	" "	12	—	Fresh
11	" "	10	—	Faint odor
12	" "	5	—	Fresh
13	Staph. py. aureus	15	—	2 weeks
14	" " "	15	—	2 "
15	" " "	10	—	Fresh
16	" " "	10	—	2 weeks
17	B. Typhosus	15	—	4½ "
18	"	15	—	Fresh
19	"	10	—	1 week
20	B. Subtilis (spores)	10	—	Fresh
21	" "	12	—	?
22	" "	15	—	Faint odor
23	Secretions of mouth	20	—	2 weeks
24	" " "	15	—	2 "
25	" " "	15	—	2 "

The convenience as well as the efficiency of this method should secure it more general use by medical practitioners. The time consumed in mixing disinfectant solutions is so great and their action so slow, that most physicians merely rinse their thermometers in water except when they have used them for a contagious case. The fact that contagious diseases cannot be diagnosed in their earliest stages, and also that apparently healthy persons may harbor in their mouths the organisms of diphtheria, influenza, pneumonia, tuberculosis, and probably also of syphilis and other transmissible diseases, shows the importance of disinfecting each time after use.

By this method the thermometer is always disinfected after it is used with no loss of time to the physician except the time it takes once in two weeks to add three drops of formalin to the case.

Clinical Department.

A SECOND CASE OF PUERPERAL ECLAMPSIA SUCCESSFULLY TREATED BY RENAL DECAPSULATION.[1]

BY GEORGE M. EDEBOHLS, M.D., NEW YORK.

A YEAR ago I had the honor of presenting for your consideration a report of the first case of renal decapsulation for puerperal eclampsia. The account of this first case, as published in the New York *Medical Journal* of June 6, 1903, may be epitomized as follows: Primipara, aged twenty-three. Typhoid fever during the fourth month of pregnancy. Symptoms of nephritis first noted during the seventh month. Uremia and eclamptic seizures near the end of eighth month. Five severe convulsions within sixteen hours, followed by forced delivery during fifth convulsion. Freedom from convulsions for forty-six hours after delivery. Then return of convulsions, six severe convulsions, not counting minor manifestations, occurring in eighteen hours. Decapsulation of both kidneys. No further convulsions, and rapid restoration of complete health.

I may add that I have seen the patient within the present month (May, 1904), and that she enjoys perfect health, with urine free from albumin and casts, fifteen months after operation.

In presenting the case I concluded with the following remarks: "The practical deduction from the happy result obtained is that we possess in renal decapsulation an additional potent resource in the treatment of puerperal eclampsia of renal origin." Personally, I should not hesitate to apply it again in a similar instance. I would even go further and propose a trial of renal decapsulation in puerperal convulsions of nephritic origin occurring prior to the beginning of labor. The mother would certainly be benefited, and the occurrence of premature delivery or the necessity of inducing it might possibly be averted.

On the first day of the present year the opportunity presented and was embraced of performing renal decapsulation for puerperal eclampsia upon the undelivered woman. The result is recorded in the following history of the case:

On Jan. 1, 1904, I was asked by Dr. N. R. Dann to aid him in a case of puerperal convulsions. The patient, W. N., a primipara of twenty, was married on Feb. 2, 1903, menstruated last on April 4, 1903, and expected to be confined on Jan. 9, 1904. Preg-

[1] Read before the American Gynecological Society, Boston, May 24, 1904.

nancy progressed smoothly until the occurrence of vulvar pruritus in November, 1903. Examination of the urine made by Dr. Dann at the date last named gave normal results, neither albumin nor sugar being present. On Dec. 20, 1903, the patient complained of specks before the eyes and dizziness. The urine was again examined and found to contain a trace of albumin. On Dec. 28, 1903, edema of the feet, puffiness of the eyelids, beginning coma, and total blindness supervened. The dropsy increased, the coma deepened, and the patient remained blind until Jan. 1, 1904, on which day at 10 A.M. the first convulsive twitching occurred. An hour later I saw the patient with Dr. Dann who had exhausted all the usual resources in attempts to dispel or lessen the uremia.

The patient's mental condition varied between stupid semi-consciousness and muttering active delirium. She was totally blind, with labored breathing, full, soft pulse, and temperature but slightly above the normal. The abdomen was of unusually large size even for a nine months' gestation; the dimensions of the patient were suggestive of hydramnios or twins. The lower extremities, the abdominal walls, and the back were dropsical in the extreme, while the upper extremities and face were only slightly edematous. Fetal movements, though not vigorous, could be plainly felt, and the fetal heart sounds were clear, distinct and regular. The cervix was tightly closed and there was not the slightest indication of beginning labor. During the twenty-four hours preceding my first visit the patient had voided in all 360 cc. of urine containing four tenths of one per cent of urea, making a total output of only 1.44 gm. of urea in twenty-four hours. During our examination a second general twitching occurred.

Renal decapsulation was offered the family and friends of the comatose patient as the most certain, prompt and efficacious measure to increase the urea output and thus to avert impending death from uremia. The offer was accepted, and hurried preparations were at once made for operation at the home of the patient.

The operation was performed on Jan. 1, 1904, at 11.30 A.M., Dr. Thomas L. Bennett administering chloroform, and Drs. W. G. Vincent and S. W. Adams assisting. On account of the enormous size of the abdomen, and of the danger of injuring the fetus by pressure, the lateral decubitus was the only position available. The left kidney was first operated upon, the patient lying on her right side. The extreme dropsy of the back, by increasing the depth of the wounds, and the convulsive twitchings of the patient even under chloroform, made the work rather more difficult than usual. The left kidney was increased in volume to about 50% above the normal. The capsule proper was found thick, strong, and loosely gathered or wrapped around the kidney. It was so loose indeed as to be slightly corrugated, and it could be pinched up in folds. There was no bleeding, not even oozing, from the kidney surface on stripping off the capsule, although the hemorrhage in cutting through the abdominal parietes had been unusually free. This hemorrhage, by the way, was purposely encouraged, and was only checked when it was judged that a sufficient amount of blood had been lost to confer on the patient the benefits of a moderate venesection. The capsule was separated from the kidney over the entire surface of the latter and was excised in toto. The kidney surface, after removal of the capsule, presented everywhere a dirty-gray, turbid, sluggish and stagnant appearance, the entire organ being choked with inflammatory exudate.

After completion of operation upon the left kidney the patient was turned upon her left side, the right lumbar region was rendered aseptic, and incision was made down upon the right kidney. The right kidney and its capsule were found in identical condition with that recorded for the left kidney, except that the right kidney was not quite as large as the left. Operation upon the right side was easier than on the left, the right kidney being readily delivered well into the wound, while the left kidney which could not be so delivered had proved more difficult of access. The operation upon the left kidney required fifteen, that upon the right fourteen minutes. Altogether, including the time required for washings and posturings, the patient was under the anesthetic for forty-five minutes. At the conclusion of operation the patient was returned to bed in good condition. The operative diagnosis was right and left acute or subacute parenchymatous nephritis.

During the twenty-four hours following operation there was almost complete suppression of urine, only 30 cc. of gelatinous, semi-solid, coffee-colored urine being obtained by catheter. Notwithstanding this, the patient's condition changed visibly for the better. During the same twenty-four hours of suppression following operation, the general restlessness and delirium disappeared, there were no further twitchings or convulsions, sight was restored following four days of total blindness, and the patient was able to recognize those around her. At the end of twenty-four hours after operation the urine began to flow freely, 1,000 cc. being drawn by catheter and a great deal more being voided into bed during the second twenty-four hours following operation, while the improvement of the patient's general symptoms became more and more marked and her condition no longer gave rise to immediate anxiety.

The next event of importance was the spontaneous commencement of labor forty-eight hours after operation. The beginning of cervical dilatation at 10 A.M. of Jan. 3, 1904, was marked by a petty convulsion quickly controlled by chloroform. At 10.30 A.M. and at 11 A.M. two further slight twitchings, the last in the history of the case, occurred. They were regarded as the response of the nervous system, still very susceptible by reason of uremic intoxication, to the ushering in of the parturient act. They gave rise to no anxiety as the patient's condition was otherwise satisfactory. At 1 P.M., the fetal heart sounds having all along remained distinct, and the cervix having spontaneously dilated to a sufficient degree, the forceps were applied to the presenting head, and a male child weighing 2,640 cc. was delivered. The partly asphyxiated child was revived by assiduous work on the part of Dr. Dann. An examination of the woman now showed a second head presenting. The fetal heart sounds remained clear. After a short period of rest for the mother and a little time granted for spontaneous birth, it was thought advisable in the interests of the second child to deliver. The forceps were applied to the head of the second child, and delivery was effected at about 3 P.M. The second child, of the same sex and weight as the first, was born alive but breathed only a few times after its birth, all efforts at resuscitation failing. The two placentæ were next delivered, after which the uterus contracted firmly and satisfactorily. The dressings of the lumbar wounds, which had become disarranged during labor and as a consequence of the immense shrinkage in size of the abdomen, were changed and the patient was allowed a much needed rest. She slept a natural sleep for the greater part of the twenty-four hours after delivery and awoke a changed, bright woman, in full possession of all her faculties.

The further progress of the case was uneventful. There was no recurrence of twitchings or of any unfavorable symptom, and the remaining edema rapidly disappeared. During the four or five days immediately following delivery a perfect deluge of urine, loaded with casts of all kinds and containing albumin in quantities varying between 0.05 and 0.6%, came down from the kidneys. The urine, mixed with blood and the lochial discharges, was not in favorable condition for satisfactory examination. Much of the urine also was lost with the fecal discharges which were abundant and frequent for some days. The exact daily amount of urine, therefore, could not be determined with anything like precision. Three days after operation, from Jan. 5 to 6, the amount of urine voided in twenty-four hours, as estimated by the nurse, was not less than 6,800 cc. One uncontaminated specimen of no less than 1,680 cc., obtained at a single catheterization on Jan. 6, was submitted to careful analysis with the following result: Specific gravity, 1,016; total solids in this one voiding, 62.63 gm.; urea, 1.3%; total urea, in one voiding, 21.84 gm.; albumin, 0.6%; numerous hyaline, epitheliated, fine and coarse granular casts, many of the latter with fat droplets; a few waxy, epithelial, blood and mixed casts; numerous isolated red blood cells; moderately frequent leucocytes. Numerous renal cells.

The output of solids and of urea during the first days after operation was simply enormous. Presuming that the specific gravity and the urea per cent above noted for a single voiding apply to the entire quantity estimated to have been passed during the third day after operation, we have an output for the third twenty-four hours after operation of no less than 253.5 gm. of solids and of 88.4 gm. of urea. By the end of a week after operation the daily excretion of solids and urea had gradually returned to about the normal. Owing to the presence of the lochial discharges, and to unwillingness to draw all of the urine by catheter, a full and valid twenty-four-hour specimen of urine was not obtained for examination until Jan. 14. Prior examinations of single voidings obtained by catheter showed a steady diminution from day to day of the amount of albumin and of the number and variety of casts. Examination of a full twenty-four-hour specimen, made Jan. 14, 1904, gave the following result: Total quantity of urine, 5,000 cc.; specific gravity, 1,011; total solids, 128.15 gm.; urea, 0.3%; total urea, 15 gm.; albumin, a marked trace; sugar, none; casts: occasional hyaline and granular, rarely a waxy; red and white cells, due to contamination with lochia.

On Jan. 31, 1904, the total amount of urine was 1,700 cc.; specific gravity, 1,015; total solids, 59.42 gm.; total urea, 11.9 gm.; albumin, a faint trace; rarely a hyaline cast; a few mucous cylindroids; no renal elements; still some lochial cells. An examination, made April 9, 1904, showed the urine to be practically normal; no albumin, no casts, a few mucous cylindroids, no renal elements.

The progress of improvement in the patient's general condition kept pace with that of the urine. At no time after delivery was there any cause for anxiety. The puerperium ran a normal course. Both lumbar incisions healed by primary union throughout, in spite of much unavoidable disturbance of the dressings during labor and immediately afterward. Three weeks after operation the patient left her bed and a week later resumed her duties in life.

Last report, May 14, 1904, four and a half months after operation. Patient has nursed her child continuously from its birth to date of report. Mother and child are enjoying most excellent health; the child weighs 9½ kg. Examination of the mother's urine gives the following results: Total quantity voided in twenty-four hours, 1,950 cc.; specific gravity, 1,012; total solids, 54.52 gm.; total urea, 21.45 gm.; no albumin; an occasional hyaline cast.

The case just narrated speaks for itself. Further comment appears unnecessary, and further valid deductions cannot be drawn from a single case. One fact stands forth prominently as absolutely proven and firmly established by the case, namely, that renal decapsulation can arrest the progress of uremia and of puerperal convulsions of renal origin *in the undelivered woman*. The deduction is self-evident. The production of abortion and the induction of premature labor, with all that those procedures imply for mother and child, need not henceforth be our only ultimate resources in the treatment of puerperal eclampsia.

A CASE OF TUBERCULOUS CONTAGION.

BY SARAH ELLEN PALMER, M.D., BOSTON,

Surgeon to the New England Hospital for Women and Children; Assistant Surgeon to the Women's Charity Club Hospital; Physician and Surgeon to the Pope Dispensary.

A. N., single; thirty-five. Came to my office in November of 1901, complaining of an uneasiness in the left axilla. I found the axillary glands slightly enlarged, and a faint line of redness and tenderness extending from a small abrasion on the wrist to be lost in the glands. The glands increased steadily in size, and at the instance of her family she consulted Dr. William Osler of Baltimore. He agreed with me that extirpation of the glands was the only treatment indicated, and early in February, I dissected out the axillary space. The more superficial glands, owing to the long delay, were about to break down and the deeper lymphatics were much engorged. Pathological report showed the glands to be tuberculous. Neither at the time nor subsequently has the patient shown evidence of general infection, and we are ready to hope that the tuberculous condition was limited to local manifestation. Investigation showed that my patient employed as maid a poor girl who had tuberculous glands in the neck which were suppurating. The wound was dressed daily, no special care being taken. This was the only direct exposure known.

After talking to Dr. Theobald Smith, I am confirmed in my idea that contagion is possible in just such a case as this reported, and that an unusual strain of bacteria might, though rarely, exist in a suppurating, tuberculous gland and thus communicate tuberculosis to others.

Dr. Osler of Baltimore, in a recent article on "Home Treatment of Tuberculosis," gives details of a plan in the city to investigate by house to house visits of trained workers the homes of the poor. They teach methods of precaution where tuberculosis is found in the family. Dr. John Russell of New York, in his School for Consumptives at the Post-Graduate Clinic of that city, has a plan of instructing the sick which is detailed in the reports of that Institution. In other cities the subject of prevention is agitated, as by the Society for the Relief and Control of Tuberculosis in Boston. It is, I believe, to the destruction of the sputa that attention is paid

most especially. In this instance reported, one of the most prominent physicians of Boston assured my patient that there was no danger to the other members of the family, although he knew the suppurating glands to be tuberculous. The belief in immunity from such a condition is evidently prevalent, because I am sure that infection from suppurating glands is rare. It is in the hope of adding an especial caution to the teachers of preventive methods, that this case is offered.

Medical Progress.

THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND HAYWARD W. CUSHING, M.D.

(Concluded from No. 21, p. 570.)

TREATMENT OF EMBOLISM OF THE LIMBS BY IMMEDIATE AND PROLONGED MASSAGE.

M. PIERRE MERKLEN[25] has recently called attention to the treatment of embolism of the arteries of the limbs by massage, a method suggested to him by Prof. Paul Berger who thus successfully treated embolism of the posterior tibial artery. When an artery is obliterated by an embolus a proximal clot forms and extends as far as the nearest branch given off by the artery; a distal clot also forms which is more extensive. If it extends very far it helps to prevent the establishment of the collateral circulation. Hence the indication is to break up the embolus or to drive it towards the periphery and to prevent the formation of the secondary clots. This result may be achieved spontaneously. M. Merklen related the case of a man suffering from mitral regurgitation which had existed for twenty-two years. He was suddenly seized with severe pain in one of the lower limbs which became cold and anesthetic up to a distance of several centimeters above the knee. The pulsations of the dorsalis pedis artery were absent but those of the femoral artery were retained. For nearly two hours M. Merklen and a colleague, relieving one another so as to avoid interruption of the process, practiced energetic petrissage of the femoral, popliteal and posterior tibia arteries until the patient declared that he was relieved. The limb was then wrapped up in cotton-wool. On the following day the relief had remained permanent and heat and sensibility had returned to the limb. The circulation evidently was re-established, although there were numbness and formication and the pulsation of the dorsalis pedis could not be felt until several months later. The patient regained complete power in the limb. Probably the massage acted by breaking up as well as by moving the embolus which was driven towards the periphery to a point where arterial obstruction did not, thanks to the collateral circulation, interfere with the nutrition of the limb.

[25] Lancet, Nov. 28, 1903.

TREATMENT OF FACIAL PARALYSIS BY NERVE TRANSPLANTATION.

Dr. Hackenbruch,[26] Wiesbaden, reported the results of an implantation operation in which he had united the spinal accessory nerve into the facial. The patient was a girl, eight years of age, in whom facial paralysis had existed for seven and three-fourths years. He implanted two thirds of the spinal accessory nerve into a cleft in the facial. Improvement was noticed at the end of four and one-half months. After a period of nine months the angle of the mouth could be voluntarily drawn outward. He also reported a subsequent case in which he had implanted, on account of infantile spinal paralysis, one third of the tibial nerve into the paralyzed peroneus nerve. At the end of three months there was some improvement. This was particularly noticed as regards position of the foot. An additional case was reported by Körte, Berlin, who showed a patient in whom, one and one-half years before, he performed an anastomosis between the facial nerve and the hypoglossal. The result showed that the muscles of the cheek and the angle of the mouth were distinctly mobile. The orbicularis oculi could be moved feebly while the frontal muscles were without motion. It was stated that the accessory nerve was a better nerve to graft than the hypoglossal. Dollinger, Budapest, called attention to the danger of dividing the accessory nerve before it passes through the sternomastoid muscle causing an incurable paralysis and atrophy of that muscle. He recommends making the division of the nerve as distal as possible and then turning it upward to unite it with the facial.

REPLACEMENT OF THE RADIAL DIAPHYSIS BY IVORY.

K. Vogel,[27] Bonn, claims to have successfully replaced the diaphysis of the radius in a case of traumatic necrosis of that bone. The patient, a little girl, was injured by a fall. The diaphysis as a sequestrum was removed subperiosteally and was replaced by an ivory rod which was fitted into the epiphysis at either end. The result is stated as quite satisfactory. The child uses the hand as before and plays like other children. Pronation and supination are somewhat restricted. The other motions of the hand are normal. Radiographic examination after one year showed considerable proliferation from the periosteum and from the epiphyses. The slight functional disturbance had then entirely subsided. The author considers that the experience has thus been found a success.

THE SEMI-LUNAR CARTILAGES OF THE KNEE.

F. F. Burghard, in an interesting article,[28] while discussing the modern treatment of several injuries thus speaks of the dislocation of the semilunar cartilages in the knee. The symptoms occur when the cartilage is bruised, torn, free, or

[26] German Surgical Congress, 1903.
[27] Deutsche med. Wochenschrift, B. xxix, Heft 46.
[28] Lancet, Dec. 19, 1903, p. 1703.

even when the synovial membrane alone is nipped between the articular ends of the bones. The writer does not consider the treatment by apparatus, pads, etc., of any especial value. He recommends conservative treatment if the patient is seen after the first injury and outlines his method of treatment. For the recurrent cases he proposes operation. After opening the joint he removes as much as possible of the injured semilunar cartilage. He discards the method of suturing. He in addition emphasizes the importance of trimming away the hypertrophied synovial fringes which hang into the joint cavity, especially in the region of the ligamentum mucosum and alaria, which may be caught between the bones and cause a return of symptoms after the removal of the cartilage. Careful search should be made for these, especially behind the ligamentum patillæ, before the joint is closed. The after treatment is also considered important, for the capsule of the joint is often relaxed and the thigh muscles atrophied. Hence a regular course of massage and exercise should be employed till these conditions are relieved. When relief is not obtained after the above methods it is generally due to the fact that an osteo-arthritis is present which has progressed in spite of the operative treatment.

REMOVAL OF AN OPEN SAFETY-PIN FROM A CHILD'S ESOPHAGUS.

Dr. A. H. Traver [29] has published an interesting case in which an open safety-pin was removed from the esophagus of an infant, nine months old. The pin was plainly seen, open, by radioscopic examination, located about half-way down the esophagus, the point toward the mouth. Its position prevented its being extracted through the mouth. The difficulty was overcome in the following manner: The child was chloroformed and placed on a table, underneath which a Roentgen ray tube had been placed, so that the pin could be seen without difficulty. While thus keeping watch of the pin, a whalebone bougie, also plainly visible, was passed down the esophagus till it came in contact with the safety-pin. Then by means of the bougie, the pin was carefully pushed down into the stomach and was seen to fall into the cardiac end. The bougie was then withdrawn. The child was now taken to the operating room, the abdomen opened in the median line, the pin located and removed through an incision one-fourth of an inch long in the stomach wall. This incision was closed with Lembert sutures and the abdomen sutured. The wound was dressed in the usual way. The child made an uneventful recovery and left the hospital on the seventh day.

POINTS IN THE TECHNIC OF MURPHY BUTTON ANASTOMOSIS.

O. Neuweiler [30] mentions the following details of technic which he considers important in the use of this surgical device: (1) The purse-string suture should not be inserted too far back from the margin of the intestine, so that a redundant mass of intestinal wall is not gathered into the cavity of the buttons around the cylinders; (2) contrarywise, also, the purse-string suture should not be too close to the margin of the intestine, so that when the button halves are apposed, the thread pulls out and permits the bowel to slip away from the grasp of the button; (3) in cases of circular anastomosis (end-to-end anastomosis) care must be taken that the mesentery is well grasped by the suture and drawn into the button, so that only serous membrane is against serous membrane; (4) a mucous membrane which bulges into the wound should be resected before the suture is passed and after the buttons are united and masses of tissue in the way should be carefully removed; (5) the pushing of the buttons together should be done not by a single powerful pressure, but gradually and cautiously. The fingers should not press too vigorously at the mouth of the ring, so that the intestine will slip off it, or so that the purse-string suture is torn out; (6) in all cases in which an absolutely uniform apposition of the serous surfaces, each to each, has not been obtained, a supporting safety suture should be carried out to prevent late accidents.

DANGERS OF THE TRENDELENBURG POSTURE.

Professor Kraske at the 1903 meeting of the German Surgical Congress,[31] while acknowledging the value of this position, comments on its dangers under certain circumstances. Twice during operations for suprapubic cystotomy there had been a fatal increase of existing myocarditis. In neither case was chloroform used and the loss of blood was not excessive. He considers that the increased hydrostatic pressure resulting from the posture caused a flow of blood from the inferior vena cava sufficient to result in acute fatal dilatation of the feeble heart. He also has observed intestinal obstruction apparently as a result of this position also in two cases. These were not patients notably fat. He, therefore, recommends that the position should be used with caution and for a short time in cases where serious disease of the myocardium is present or when it is believed that the omentum, mesentery and appendices of the cloaca are notably fat. During the discussion which followed, Trendelenburg doubted the correctness of Kraske's conclusions in regard to the cardiac cases. He admitted the possibility of intestinal obstruction, although stating that he had never seen such a result follow. He reported gastric hemorrhage following the use of the position. Konig at Berlin spoke warningly against this position in cases of abscess. Kümmel differed from Kraske in regard to the above mentioned ill effects. He claims never to have seen ill results from the use of the position, and did not believe that intestinal obstruction could follow.

[29] American Medicine, July 11, 1903, p. 53.
[30] Archiv. f. klin. Chir., 1903, B. 69, H. 4.
[31] Proceedings of the German Surgical Congress, 1903.

THE TREATMENT OF GRANULATING WOUNDS.

Under this title H. Wagner of Breslau describes what he terms his "open air" treatment.[32] He claims that by this method a clean granulating surface the size of the palm of the hand can be covered with epidermis in eight to ten days. He has not observed during five years' experience any trouble from infection. He thinks that the danger of infection from air is slight, and quotes several authorities in support of this opinion. He claims that the usual moist and ointment dressings macerate and destroy the new forming epidermal cells. Also that they retain under the dressing the secretion of the glands in the deep layers of the skin. His method briefly is to daily clean the edges and surrounding skin with ether and then place the wound so that no clothing touches it. The dryer the room the more marked is the effect on the wound. He even, in suitable weather, places his patient out of doors. At night the wound is covered by powder, iodoform, or dermatol, or lime and starch and a bandage. The kind of powder is considered immaterial. He states that in spite of the dry bandage each morning the wound is moist. The secondary slough disappears, the granulations grow rapidly and the epidermis closes in daily from the edges, often several millimeters. He has no trouble, he claims, from retention of wound discharge under crust formation and infection. He thinks that the conditions of dryness inhibit the growth of bacteria. He would not conduct this open treatment, however, in wards where erysipelas or acute infectious patients were treated. For the exact details the reader is referred to the writer's original article which contains some interesting clinical observations of cases treated by ointment dressings and moist bandaging.

SEVERE BURNS.

M. M. Dieterichs[33] reports the results of an investigation for the purpose of learning the cause of the chemical conditions in very extensive and severe burns, especially the toxic changes in the blood. He reports to have found such substances in the blood of severely burned animals and in greatest abundance during the first five to ten hours. Agglutinine appeared somewhat later than lysine. For the full details of the conditions of the experimentation and the results the reader is referred to the original article.

In the second part of the report the writer applies the results of his work to the practical treatment of these cases and concludes that the conditions which call for relief are:

First. That the blood pressure should be raised preferably by the use of normal salt solution by rectum or by intravenous infusion. By this also the toxins are excreted by the kidneys.

Second. The deficiency of oxygen and the resulting destruction of the red blood globules must be relieved by a liberal use of oxygen.

Third. An excessive loss of bodily heat must be prevented.

As local treatment of the burn Dieterichs strongly recommends the aseptic dry treatment, avoiding as far as possible the use of drugs.

THE TREATMENT OF BURNS BY THE DRY METHOD.

Dr. M. Sattler in an interesting article has recently discussed this subject.[34] He calls attention to the fact that the chief symptom calling for relief in these cases (after "shock") is pain, and that most methods of treatment fail to relieve it. That treatment to be satisfactory must prevent infection, relieve pain, favor and hasten the removal of necrotic tissue and cicatrization of granulation tissue. The writer contrasts what he terms the "dry bandage" treatment with the other usual methods. He states that of 33 cases treated by water bath and other methods, 9 died, while of 29 cases by the "dry" method, no deaths occurred. In a later series there was a mortality of 8.8%. This dry method has been advocated at times by Lustgarten, Mosetig-Morrhof, Bardeleben, Eichhoff, and others. It was claimed to produce a dry slough and to hinder decomposition. Many observers claimed that the iodoform treatment of Morrhof in 1887 had a pronounced effect in quieting pain and preventing infection. Substitutes for iodoform were aristol, bismuth subnitrate, dermatol, xeroform and thiol. Dr. Sattler's method, briefly stated (for details the reader is referred to the original article), is to thoroughly clean the burnt area, open the blebs and remove all tags of epidermis with sterile scissors. The gelatinous exudation under the epidermis is wiped off with dry compresses. The surface surrounding the burn is then thoroughly cleaned. The affected area is thus made as far as possible aseptic. The injured surface is now covered with a thick layer of xeroform and after being thickly sprinkled with powder is covered with a covering of sterile gauze over which a layer of sterile cotton is fastened with a bandage. This bandage is changed generally after four to six days; in cases of much wound discharge oftener. In order to avoid pain and bleeding the patient is put in a bath when the bandage is removed and the dressing renewed. By this method it is claimed that infection is prevented, the necrotic areas are thrown off rapidly, that granulations form rapidly and defects are rapidly closed so that subsequent cicatricial contraction is prevented. The hypertropic growth of granulation tissue and profuse exhausting suppuration are avoided or essentially limited. If exuberant granulation tissue does form it is controlled with silver nitrate or a thermocautery. Strict attention is also paid to the function of the heart, kidneys and expectoration. This treatment has been now employed in one hundred cases to the exclusion of other methods. When contrasted with other methods such as ointment dressings, etc., on the same patient the result as regarded rapidity of healing, absence from pain, and the

[32] Centbl. f. Chir., 1903, Bd. xxx, 1361.
[33] Russisches Arch. f. Chir., 1903, Russian.
[34] Wiener Med. Presse, 1903, Bd. xliv, s. 2262.

character of subsequent scar formation was so markedly in favor of the "dry method" that finally other methods were discarded. The xeroform and powder dressing has a marked power in controlling pain which generally ceases shortly after the dressing is applied. The sloughs are separated in a shorter time, the granulation growth is more rapid and vigorous and the lesions cover in with epidermis quickly. The scars show no tendency to contraction. The xeroform is non-toxic. It diminishes the wound secretion thus avoiding frequent change of dressing. The histories of several cases of severe burns are published with the article illustrating the author's method, and showing his results.

ANTISEPTIC DRESSINGS.

Nœtzel [35] concludes from experimental research that the secretions of a wound are drawn up into a moist dressing better than into a dry one. Virulent anthrax bacilli placed on an artificial wound in rabbits were absorbed into these dressings and infection of the animals was prevented. Both the moist and the dry proved equally effective in this respect, but the germs were drawn up into the outer layers of the moist gauze while they were found only in the layers closest to the wound in the dry dressings.

THE ANTISEPTIC ACTION OF IODOFORM.

Dr. B. Heile [36] asks, Why does iodoform prove a good antiseptic in the clinic, and in the laboratory lag behind all other antiseptics in virtue? Heile's investigations show that when mixed with tissue juices in the *absence* of oxygen iodoform becomes decomposed in three to five days, and that it now kills both staphylo- and streptococci, while under the same circumstance neither the tissue juices nor the iodoform alone have any effect. Of the body juices, that from the liver decomposes iodoform most powerfully, that from the brain or from fat least powerfully. Granulation tissue acts similarly to juices from organs, and tuberculous granulation tissue seems to have the most intense decomposing power. The degree of decompositon was found by the quantitative test for iodine. Corresponding to the antiseptic action of iodoform is the degree in which iodine is set free. The antiseptic action is, however, not due to the free iodine, since iodine is set free in the presence of oxygen, and iodoform is no longer an antiseptic when oxygen is present. Further, iodine, in the form of tincture or in solutions of KI or NaI, of much greater concentration than can be obtained by the decomposition of iodoform, is not antiseptic.

The author thinks it most probable that the decomposition of iodoform sets free di-iod-acetylene (CHI-CHI). This is very powerfully bactericidal, and is rendered inert by oxidization. These experimental findings correspond with clinical experience. Iodoform has much value in cavities, but none in superficial wounds. In internal organs, viz., liver and kidneys, iodoform is most powerfully decomposed, so powerfully, in fact, that it sometimes acts not merely as an antiseptic, but as a caustic.

The author concludes that iodoform is truly one of our best, if not the best, of our antiseptics.

[35] Archiv. f. klin. Chir., lxxxi, no. 1.
[36] Proceedings of the German Surgical Congress of 1903.

MODIFICATION OF EYE OF SURGICAL NEEDLE.

The slipping of thread and unthreading of needle during the suturing of wounds is often a source of great annoyance to the operating surgeon. To obviate this difficulty Dr. Marsh [37] has modified the eye of the surgical needle in such a way that this slipping of the thread is prevented. This he has accomplished by narrowing the eye end of the usual oval-shaped eye to a point. During suturing the traction on the thread forces it into this narrow portion of the eye by which it is grasped and slipping prevented.

OPERATIVE TREATMENT OF EXSTROPHY OF THE BLADDER.

E. Orloff [38] in a comprehensive monograph has included all the cases he has been able to find in which Maydl's method of transplanting the ureters has been employed with or without modifications. The total number of cases included is 61, which list includes 5 from his own records. Three of his patients died shortly after operation. He reports excellent results in two others. He also reviews other operative methods to date giving the results.

A NEW CYSTOTOMY OPERATION.

R. Frank [39] recommends a novel procedure, particularly applicable to old people with thick abdominal walls in whom a median cystotomy would be attended with considerable risk on account of possible complications. The operation is practically a perineal cystotomy and the main points are as follows: A transverse perineal incision is made and the rectum separated from the prostate, the blunt dissection being carried back until the posterior bladder wall, the seminal vesicles and Douglas' pouch are exposed. The section of exposed bladder wall is now incised in the median line, and the interior of the viscus explored. The author has used this method in two cases of vesical calculus, and in one of papilloma of the bladder, with good results. The operation requires more skilled technic than the median section, but the author thinks that is compensated by the simplicity of the after-treatment, more favorable drainage and cutting short the period of healing. The patients need to be kept in bed about eight to ten days, but during this time they may change their position, and from the beginning lie on the side.

THE PATENCY OF THE VAS DEFERENS AFTER SECTION, RESECTION AND SUTURE.

H. Vulliet has attempted to demonstrate that the vas deferens after resection can be sutured so that its canal is patent.[40] First this was ac-

[37] Journal of American Medical Association, vol. xli, p. 1413.
[38] Revue de Gynecologie, Paris, vol. vii, no. 5.
[39] Archiv. f. klin. Chirurgie, vol. 71, no. 2.
[40] Centbl. f. Chir., 1904, vol. xxxi, p. 36.

complished in dogs successfully. The suture was very fine. The diameter of the vas was not more than 2 mm. and that of the canal ½ mm. The wall was, however, rather thick which made it possible to suture it without the needle penetrating the canal. As just stated the needle and suture must be very small. In four operations the duct was shown histologically to be open and the canal lined with normal epithelium in three. Dr. Möhrlen in Lusanne also succeeded in finding live spermatozoa in the ejaculated seminal fluid in two dogs in whom the vaso deferentia had been resected and sutured, thus adding the physiological to the histological proof that this restoration of the duct is possible.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

The nineteenth annual meeting was held at Washington, May 10, 1904.

The meeting was called to order by the President, Dr. Wm. T. Councilman, of Boston.

The first feature of the program was the delivery of the president's address. In this, Dr. Councilman reviewed the condition of the association and called particular attention to the disadvantages resulting from the limitations upon membership. He asked that careful consideration be given to the question of increasing the number of members, and suggested, as one means whereby the end might be accomplished without detriment to the work of the society, that a class of associate members be established from which future members should be chosen, and that active membership be limited to twenty years; at the end of that period members to be transferred to the roll of honorary membership. This would about cover the average active period of a man's professional life and provide regularly a sufficient number of vacancies to accommodate the desirable portion of those on the waiting list.

THE INFLUENCE OF SUPRA-RENAL EXTRACT UPON ABSORPTION AND ELIMINATION; WITH DEMONSTRATIONS. DRS. S. J. MELTZER AND JOHN AUER.

Dr. Meltzer explained the experimental work whereby it was shown that the action of certain drugs was very much retarded when they were given in association with supra-renal extract. It was shown that this action was not a matter of chemical neutralization but due to biological changes. If small doses of adrenalin be injected into a frog, it becomes paralyzed in a few moments, but this is not a muscular paralysis since stimulation of the sciatic nerve causes the muscle to contract in a normal manner. If the effect of the adrenalin be allowed to wear off now, and strychnia given, even in more than the usually fatal dose, it produces no effect or only after a long period of delay.

In order to determine whether this was really a matter of delayed absorption experiments were made with a substance which is ordinarily very rapidly taken up by the tissues. If fluorescin be injected subcutaneously into a rabbit the conjunctivæ and mucous membranes very quickly take on the characteristic yellow stain and the Ehrlich's line appears in the pupil. If, however, such an animal be previously given adrenalin the coloring effects do not appear for a much greater length of time. As this coloring matter has first to be absorbed into the blood and then eliminated through the tissues of the organs, this may not have been purely a matter of delayed absorption but rather one of delayed elimination. By carefully timing, on a series of animals, the appearance of the color in the serum and later in the tissues it was demonstrated that both absorption and elimination are delayed by the adrenalin. These differences were most strikingly shown in the tissues of the kidney; the studies upon the urine were not so distinctive because even a minute portion of the fluorescin colors the fluids of the body intensely.

An effort was then made to determine whether transudation would also be delayed by adrenalin. For this purpose salt solution was introduced into the peritoneal cavity where, as we know, it ordinarily changes very rapidly with the blood, and fluorescin was injected into the vessels. Specimens were shown demonstrating that the fluid from the peritoneal cavity of the control animals contained more coloring matter after eight minutes than that from the adrenalin injected animal after sixteen minutes.

The work seemed to show that the use of adrenalin delays the absorption, elimination and transudation of other substances introduced in the body. The principal practical conclusion drawn was that in certain cases toxic materials introduced into the tissues might be delayed in their action by the use of adrenalin.

Discussion. — Dr. W. Gilman Thompson said that in his use of adrenalin therapeutically he had not observed that it had any effect whatever upon the kidneys and that it might do so experimentally because of the large dose or its continuous employment, but he doubted if it would do so in therapeutic doses.

Dr. H. A. Hare said that his conception of the action of adrenalin had been that it was quite brief in its effect and he was surprised to hear that it could prolong the effect of other remedies. He also called attention to the belief that the local application of adrenalin, through the ischemia produced, seemed to increase the danger of infection.

Dr. Meltzer, in closing, said that the popular conception of the action of adrenalin, as expressed by Dr. Hare, had its origin in a knowledge of its action on the blood pressure only. In some experiments he had been able to watch its effect upon the blood vessels for several hours. The effect upon non-striated muscle was much longer than that upon the striated muscles. He explained the delayed absorption and transudation by the theory that there exists a ring of contractile tissue around the pores of the capillary endothelium, and that the varying size of this ring, under the stimulus of the adrenalin, determines the rapidity with which other substances may pass through the pores.

POLYURIA IN TYPHOID FEVER. DRS. F. H. FUSSELL, H. S. CARMANY AND HUDSON.

Dr. Tyson reviewed the literature of typhoid fever to show the general opinion that as a rule the quantity of urine passed during the first week or ten days of this disease is usually diminished, that after the second week the quantity increases and that during convalescence it is almost invariably copious and of low specific gravity. Some authorities were quoted to show that polyuria occurs in a small percentage of cases and that, rarely, the amount passed may be as great as 10,000 cm.

The case which he reported was that of a married man aged forty, admitted to the hospital on about the eighth day of his typhoid fever with a temperature of 103°. On the day after admission his polyuria began and continued during the height of the fever. The

largest amount passed during one day was 7,200 cm. The amount of urea excreted was constantly normal in percentage. The polyuria lasted, to a greater or less degree, for a month, and during this period he was nervous and extremely thirsty. The patient has been under observation for a year since his recovery from typhoid and presents no evidences of organic kidney disease or diabetes.

Discussion. — DR. DOCK called attention to some work which had been done in regard to the retention of waters in fever, at the result of which the rule has been laid down that at first there is an actual retention of fluid in the body but that after defervescence the amount secreted increases until there may be a polyuria. He had been interested in noticing the effect of cold baths in typhoid upon the excretion of urine, and had found that where these were used there was not much retention during the fever. He therefore believed that the theory of treating fevers by "washing out" is to a certain extent possible. Dr. Withington inquired as to the nervous condition of the patient preceding the onset of polyuria, and Drs. Cabot and Osler both asked as to the connection between the polyuria and the typhoid, Dr. Osler pointing out the fact that in certain conditions, such as tuberculous peritonitis and retroperitoneal tumors, polyuria frequently occurred as the result of local irritation.

DR. W. S. THAYER remarked that the quantity of water the patient is drinking might play an important part in these cases, and spoke of some observations made by Dr. Cushing of Cleveland in this connection. He pointed out that typhoid fever patients probably do not always get as much water as they desire in spite of the liberal attitude of the physician in charge. Dr. Cushing has been carrying a rubber tube from the water tank to the bedside and attaching it so that the patient may suck water from it whenever he desires. He has found that these patients drink enormous quantities of water and pass large quantities of urine, and he is also under the impression that this is a beneficial feature in their treatment.

CASES OF VENOUS THROMBOSIS OCCURRING IN THE COURSE OF TYPHOID FEVER. DR. W. S. THAYER.

DR. THAYER presented an analysis of 42 cases of venous thrombosis occurring in the course of typhoid fever. Thirty-nine were instances of venous thrombosis that occurred among the 1,463 cases of typhoid treated in the Johns Hopkins Hospital; two were instances of this complication which were admitted during the period of convalescence and one was a man who had suffered from double iliac thrombosis coming on during typhoid fever but who entered the hospital for treatment two years later. In 5 of the 39 cases occurring in the hospital there was a fatal result; mortality 12.3%. In two instances the thrombus was the primary cause of death. As to the distribution of the lesions, the thrombus occurred in the lower extremities in 40 instances; in the upper extremity in one instance; and in the pulmonary artery in one instance. The vessel occluded was located on the left side of the body in 26 cases; on the right side in 5 cases; on both sides in 9 cases; no record in 2 cases. The particular vessels affected were: the femoral vein in 21 instances; the popliteal vein in 5 instances; the iliac vein in 5 instances; the internal saphenous in 3; the veins of the calf alone in 5; the axillary vein in 1; the pulmonary artery in 1; and the pulmonary artery and common iliac in 1.

In 36 of the 39 cases the development of the thrombosis was associated with fever. In 11 cases it was associated with chills. The first definite symptom of thrombosis in every instance was pain. In all of the cases there was swelling of the affected part and in some instances there was redness over the affected vessel. In 16 cases the thrombotic mass was felt as a palpable cord. Leucocytosis was almost always present and its extent depended, in part at least, upon the extent of the lesion, the highest count noted being 25,000 and the average count above 10,000. A study of the prognostic features showed that venous thrombosis in the lower extremity is always a serious complication of typhoid fever, and although the immediate danger is not great the after results are often grave; the affected extremity is often considerably and permanently enlarged, there is marked varicosity and usually more or less permanent disability when the femoral or iliac veins are affected. Thrombosis of the veins of the calf is less severe.

Discussion. — DR. PEABODY referred to the belief that the coagulability of the blood is increased by the presence of an increased amount of calcium salts in the blood and to the possibility that this could be overcome and thrombosis prevented by the administration of sodium citrate.

DR. STENGEL said that he had had a number of experiences with the appearance of the general symptoms produced by the thrombus before the local symptoms were noted. He had seen two cases of thrombosis of the pulmonary artery.

DR. WELCH called attention to the accumulating evidence in support of the old theory that the thrombosis in these cases originates from a primary inflammation of the walls of the vein — an infective phlebitis. This theory was once supposed to have been overthrown by Virchow, but the recent work of the French school, in particular, tends to show that although the question is by no means settled the inflammatory theory must be reconsidered. One of his assistants, Dr. Longcope, had recently gone carefully over these pathological specimens in his laboratory and demonstrated the presence of bacteria in over 70% of the cases.

DR. PRINCE said that, in this connection, he would like to report a case of typhoid that began with phlebitis of the veins of the leg. The patient was one who had previously suffered a number of attacks of phlebitis and presented the history of a gouty diathesis.

DR. CAREY referred to the marked disproportion between the general systemic symptoms and the local condition. He recalled one case where the local trouble did not seem to be very great but where the chills were as violent as in the vicious types of malaria. He believed, however, that most of these cases recovered entirely from the local edema.

DR. THOMPSON differed with Dr. Carey as to the ultimate results.

He had eight cases under observation for from six to ten years and in no one was there anything like complete recovery. All of them are weak and show dyspnœa after any exertion.

DR. TYSON questioned whether the pain which was such a marked feature of the thrombosis might not be due to the sudden vascular obstruction, and explained in the same way as that which accompanies angina pectoris.

DR. OSLER called attention to the difference in clinical picture between the hard, swollen, painful leg of phlegmasia albadolens and the condition described as occurring in typhoid. He said that he did not believe that the average experience with this condition would show quite such hopeless results as appeared in the report. He had known of a number of cases in private practice that had shown complete recovery and thought that the hospital had simply had an experience of an unfortunate series of cases.

CLINICAL STUDIES IN ARTERIO-SCLEROSIS. DR. ALFRED STENGEL.

The author had carefully studied the blood in a series of these cases. In measuring the blood pressure he used Stanton's apparatus in preference to the Riva-Rocci because it is devised to estimate both the diastolic and systolic curves. He does not believe that there is always high pressure where there is arterio-sclerosis. He had observed that the diastolic pressure is always high but the systolic pressure is not necessarily so; the mean pressure is generally high. He found a marked contrast between the appearance of the patient and the condition of the blood. In spite of the very marked anemia of the advanced cases there is often a high blood count and high percentage of hemoglobin. He had also noted that one of the first signs of arterio-sclerosis was a sustained first sound of the heart, and this prolongation was considered an important point in determining the early development of arterio-sclerosis.

Discussion. — DR. KINNICUTT asked whether the cases of low blood pressure that Dr. Stengel had encountered were in what might be called senile arterio-sclerosis, and said that his own observations had been that the blood pressure in senile arterio-sclerosis has been rather lower than that seen in pathological sclerosis.

DR. COHEN called attention to the fact that many elements enter into the production of high or low blood pressure, and that as only the net results are expressed by the measurements it is impossible to say whether the changes from normal are due to alterations in the vessel wall, the innervation or the cardiac force. He agreed with Dr. Stengel in the observation regarding the prolongation of the first cardiac sound and added that the sound is often impure in character.

DR. STENGEL replied to Dr. Kinnicutt that the cases of low pressure he had referred to were in pathological and not senile sclerosis.

AN INVESTIGATION OF THE EFFECTS OF CARDIAC STIMULANTS, ESPECIALLY STRYCHNINE, ON THE BLOOD PRESSURE IN FEBRILE CONDITIONS. DR. R. C. CABOT.

The cases included in this study were all febrile: 31 of typhoid, 4 of pneumonia and 15 with various diagnoses. In 32 instances the strychnia was given by mouth; in 18, subcutaneously. The records were kept for days and sometimes weeks before and after the drug was given. The measurements were taken with the Stanton modification of the Riva-Rocci instrument. The observations extended over eight months and included over 5,000 measurements.

Dr. CABOT's conclusions are, that strychnia does not raise or in any way affect the maximum or minimum blood pressure when given in the usual manner and

Discussion. — DR. STENGEL confirmed these observations and said that in some of his own work he had noticed that while this drug and others, even emotion, might cause a slight rise in the systolic pressure there was little or no influence exerted upon the diastolic pressure.

DR. HARE said he considered this paper of considerable value to the general profession as they had within the past few years come to look upon strychnia as a cardiac stimulant and to use it with the same energy that had formerly applied to the use of digitalis. Personally, he had been convinced that it not only did not act as a stimulant in fevers but that it sometimes retarded the patient's advance.

A SUPPOSED CAUSE OF HIGH TENSION PULSE IN NEPHRITIS. DR. W. H. THOMSON.

DR. THOMSON offered the following conclusions:

(1) High tension pulse occurs too early in nephritis to be due to any other cause than the presence in the blood of a general vaso-constricting agent, similar in its properties to adrenalin.

(2) Such an agent would also produce constriction of the renal vessels and general shrinkage of the kidneys, causing interference with the excretion of urea.

(3) Prolonged presence of such an agent in the blood would lead ultimately to endarteritis with degeneration of the vascular walls and to cardiac changes.

(4) Acute cardiac dilatation may occur from the effects of such a general vaso-constricting agent in the circulation before extensive alterations in the blood vessels have taken place.

(5) Aconite is the best vaso-dilator in nephritis, much more effective than the nitrites.

Discussion. — DR. PEABODY said that experience had taught him that aconite would materially increase the urea output even in cases where the arterial tension is abnormally low. The reason for this he could not give.

POISONING BY ILLUMINATING GAS. DR. W. G. THOMPSON.

DR. THOMPSON'S investigation was undertaken to determine the cause of death and of certain symptoms that are characteristic of poisoning by illuminating gas. The series of cases included 90, of which 17 were fatal. In New York there were 288 fatal cases in 1901, and probably 2,000 cases of gas poisoning occur there annually. This is due to the prevalent use of the gas stove and to the ignorance of the foreign population coming into the city. He described the effects upon the blood, and looked on carbon monoxide as the particularly poisonous element. He believed its action upon the nervous system is more important than the changes produced in the blood. A leucocytosis that lasts for many days is one of the features. The character of the fever is varied. A subnormal temperature may exist for hours and then be followed by a fever that persists high for a week or more. One case of hyper-pyrexia — 110° — reported. The nervous symptoms are varied and inconstant. They consist of tremors, anesthesia, rigidity, opisthotonos, headache, coma, mental disturbance, etc. Peripheral neuritis, sclerosis and changes in the brain and cord may follow as sequelæ.

The most satisfactory form of treatment had been phlebotomy and infusion of salt solution.

Discussion. — DR. STENGEL called attention to some experimental work that had shown that the transfusion of defibrinated blood had saved animals poisoned by coal gas even when venesection and infusion with salt solution had failed.

DRS. WEIR MITCHELL and SOLIS COHEN each called attention to the varying composition of illuminating gas in different cities, and even in a given city at different times. The last-named speaker and DR. PEABODY spoke of the difficulties in the way of procuring and using defibrinated blood.

DR. THOMPSON said, in conclusion, that these cases must be treated promptly, and salt solution is more convenient than defibrinated blood.

AN ANTITOXIN FOR SNAKE VENOM. A PERSONAL COMMUNICATION FROM DR. NOGUCHI TO DR. MITCHELL.

DR. S. WEIR MITCHELL read to the society a letter just received from Dr. Noguchi detailing the results of experimental work which he had been conducting under the auspices of the Carnegie Institute, in the

laboratories at Copenhagen. Dr. Mitchell explained that Dr. Noguchi had engaged upon this work with Dr. Flexner at the University of Pennsylvania two years ago, and having demonstrated his fitness to conduct such a scientific investigation and having outlined his plan of work the Institute had, at Dr. Mitchell's request, decided to provide him with the means.

The report of his studies was eminently satisfactory. He believes he has succeeded in preparing a certain antidote to the venom of the rattlesnake. The antitoxin will not operate against the toxins of other varieties of snakes, and he questions the work of others who have claimed to have discovered a universal antitoxin.

AFTERNOON SESSION. TUESDAY, MAY 10, 1904.

ABDOMINAL PAIN FROM UNSUSPECTED IRRITATION OF THE INTERNAL INGUINAL RING. DR. CHAS. G. STOCKTON.

The class of cases to which DR. STOCKTON referred presents the clinical picture of pain, generally located in the lower quadrant of the abdomen but occasionally in the upper as well, sometimes described as colicky, sometimes as misery, and, at others, as burning; there is rarely localized tenderness; occasionally there is a sense of abdominal uneasiness, a vague unrest, difficult to describe; at times the patient speaks of moderate disturbance of the intestine as though occasioned by intestinal flatus; generally these symptoms are relieved when the patient lies down, and, as a rule, exercise increases the distress; there is a marked tendency to recurrent attacks and the patient wanders from doctor to doctor, or becomes a drug fiend. The anatomical basis for these symptoms is to be found in a slightly over-patulous state of the internal hernial ring; not a condition so advanced as to admit of evident and easily recognized protrusion of the intestine or omentum, but one in which a slight bulging may be detected on palpation, when the patient undergoes abdominal strain such as is produced by coughing or bearing down. The sensation communicated to the finger is often quite unlike that of ordinary hernia. It is as though a very thin and almost unappreciable membrane presented at the opening with a sensation of elasticity as though a moderate gaseous pressure was operating behind it.

The symptoms presented so closely simulate serious abdominal conditions that many cases have come to unnecessary operation. The proper treatment is the application of a carefully fitted truss. The histories of twelve cases were given in detail.

Discussion. — DR. CAREY related the history of one case which had come to operation after the patient had become addicted to morphia and the mere trace of a hernial sac found and removed; the condition was relieved.

DR. PEABODY reported a case that had long been suspected of being appendicitis but was finally properly diagnosed and relieved by the use of a truss.

DR. BOND described a case simulating intestinal flatulence that was discovered to belong to this class.

DR. DOCK saw one in which the diagnosis was made, but, in addition, the man was supposed to have gallstones. The hernia was operated upon first and investigation of the gall bladder failed to disclose any trouble there. It was concluded that the colic in that region was simply reflex pain from the inguinal trouble.

THE MECHANISM OF EXOPHTHALMOS. DRS. W. G. MACCALLUM AND W. B. CORNELL.

An effort was made to determine experimentally the mechanism of exophthalmos by arranging an apparatus that would mark upon the smoked drum any movement of the eye, and then proceeding to alter the normal vascular and muscular conditions. It was shown that obstruction to the outflow of blood from the veins of the orbit produces at once exophthalmos which is relieved by the establishment of collateral circulation. This process is completed, however, so slowly that in the meantime the orbital tissue as well as the tissue of the face becomes very edematous, thus adding to the exophthalmus. Furthermore, entirely independent of any circulatory changes, there is an exophthalmos produced directly by the stimulation of the cervical sympathetic nerve. This protrusion is due to the peristaltic contraction of the orbital muscle tissue.

From these experiments no conclusions could be drawn as to the mechanism of exophthalmos in Grave's disease, but the possibilities are more closely defined.

DIABETES INSIPIDUS. DR. THOMAS FUTCHER.

DR. FUTCHER called attention to the fact that animal experiments have shown that polyuria follows lesions of a point in the floor of the fourth ventricle a little in front of the glycosuria center; also after injuries to various portions of the middle lobe of the cerebellum; and, after injuries to the posterior portion of the pons and the anterior part of the medulla. He divided the cases of diabetes insipidus clinically into two groups, the idiopathic cases, or those without evident cause and the secondary or symptomatic cases, those referable to some organic lesion or some known cause. Tumors of the medulla and floor of the fourth ventricle, basilar meningitis and cerebral hemorrhage are the commonest organic lesions causing the disease. He believed that cerebral syphilis is a cause in a much larger percentage of cases than has been generally suspected. A basilar syphilitic meningitis he considered to be frequently the lesion and looked upon a transitory bitemporal hemianopsia in a case of diabetes insipidus as strong evidence in favor of the disease being due to syphilis.

He stated that diabetes insipidus belongs to the rarest of the medical diseases. In fifteen years there have been but seven cases recorded in the Johns Hopkins Hospital and Dispensary out of a total of 403,535 patients. Five of these cases belonged to the symptomatic group, and of these four were undoubtedly syphilitic in origin. Thirst appeared to be the first symptom complained of in the majority of cases. In considering the treatment, Dr. Futcher stated that while it is very unsatisfactory as a rule, the cases which appear to do best are those of luetic origin; anti-luetic treatment almost invariably relieves the cerebral symptoms and occasionally causes a reduction in the thirst and polyuria.

Discussion. — DR. BAUMGARTEN asked if Dr. Futcher had observed any connection between diabetes insipidus and saccharine diabetes. He related the history of a case which first came under his observation twenty years ago as a young man with diabetes insipidus. A year or two later the disease took on the attributes of saccharine diabetes. There was never any suspicion or evidence of syphilis or cerebral disease in this case, and the patient eventually died of tuberculosis.

DR. THOMPSON related a case which was hereditary in character and in the treatment of which he had made careful estimations of the food and water taken and the amount of polyuria, and had shown that actually more fluid was excreted than was ingested.

DR. TYSON said that he had only seen six or seven cases in the whole course of his practice, but that in these he had been impressed by the fact that they were so largely relieved by potassium iodide.

Dr. Dock spoke of the prognostic differences of these cases and of the satisfaction with which he elicited the history of syphilis in any case, because he felt that the syphilitic cases were more favorable for treatment.

Dr. Jacobi thought that the frequency of diabetes insipidus is very much greater than hospital records would seem to imply, and gave as his reason the belief that the disease is quite frequent in childhood. He had seen it follow chorea minor, whooping cough, falls upon the occiput and probable cerebral tumors.

Dr. Futcher said that he did not wish to give the impression that the vast majority of cases of diabetes insipidus are due to lues, but merely that there are a greater number of cases due to that disease than has been generally supposed.

A CASE OF PROLONGED MALE HYSTERIA: WITH AUTOPSY. DRS. S. WEIR MITCHELL AND W. G. SPILLER.

Dr. Mitchell related in detail the clinical history of an hysterical man who had been under his observation more or less constantly for thirty years. He had watched it from the appearance of the first nervous symptoms to the development of peculiar muscular movements that were constant in character and uncontrollable by the patient except by the greatest effort on his part, or under the influence of hypnotism. The patient requested that after his death an autopsy should be performed under Dr. Mitchell's direction, and this was done, Dr. Spiller making a most careful examination of the brain and cord. Absolutely no lesion could be found.

Discussion. — Dr. Prince related the history of a similar case.

Dr. Putnam expressed the feeling that these continuous movements, which hysterical patients sometimes carry on, and the fact that they are carried on by dissociated centers and without signs of fatigue on the part of the patient are important, and that the so-called professional neuroses cause effects from much less motion than these hysterical patients are accustomed to carry out.

Dr. Wood said that in order to account for this thing it would seem reasonable to suppose that the nerve centers of organic life may take on some of the functions of the centers of inorganic life. He referred to the fact that the heart beats constantly for a period of many years, but leaves no record of its contractions, and suggested that perhaps, after all, it is not the muscular movement that leaves a cerebral record, but the volition thereto.

Dr. Mitchell thought that we might have expected to find some marked pathological evidence resulting from such long continued muscular actions, and in support of this view referred to the work of Dr. Hodge on the effects of fatigue upon the nerve cells.

SOME UNUSUAL FORMS OF ACUTE MYELITIS. DR. B. SACHS.

Dr. Sachs defined the term "acute myelitis" as a disease process causing a more or less rapid or a more or less complete destruction of the substance of the spinal cord at any given level, excluding, however, those forms which are due to large hemorrhages and to the breaking down of neoplasms.

The clinical histories of two very unusual cases were given, the first being a senile form of myelitis which had the characteristics of a spinal counterpart of the cerebral apoplexies which occur at that time of life, and the second was the record of a sudden development of myelitis in a young girl who presented the complication of multiple streptococcus abscesses.

(To be continued.)

Recent Literature.

Atlas of Operative Gynecology. By Dr. Oskar Schaeffer, Privatdocent of Obstetrics and Gynecology in the University of Heidelberg. Authorized translation from the German with editorial notes and additions. Edited by J. Clarence Webster, M.D. (Edinburgh), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynecology in Rush Medical College; Obstetrician and Gynecologist to the Presbyterian Hospital, Chicago. With 42 colored plates and many text illustrations. 138 pages. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This little book is a companion to the Atlas of Gynecology, by the same author and same publisher, which appeared in 1900.

The plates are carefully executed and show the steps of the operations clearly and the explanatory text is terse and satisfactory.

A noticeable feature of the operative technic is the use of double tenacula to bring the tissues into view, displacing the speculum almost entirely, in some of the operations as many as ten pairs being figured.

Although many of the operations are not those commonly practiced in this country, the book should prove of value to the medical student in making him familiar with the minutiæ of gynecological operating, an opportunity which is but scantily afforded him in most of the hospital clinics.

The Self Cure of Consumption. By Charles H. Stanley Davis, M.D., Ph.D. New York: E. B. Treat & Co. 1904.

This book adds another to the long list of those which have already appeared upon the treatment of tuberculosis, and barring some rather sweeping statements and inaccuracies, both typographical and otherwise, it will be of use in circulating knowledge about the disease and its treatment.

In Chapter VII the author declares that "without full and free exposure to outdoor air, regardless of all weather, no case of tuberculosis has been cured," a statement which can be disproved in many cases, while granting that the exceptions to this rule are decidedly in the minority.

The advocates of the use of tuberculin and of the x-ray as means of diagnosis will not agree to his sweeping condemnation of the former and his entire skepticism as to the efficacy of the latter in detecting pulmonary disease in its incipiency.

Inaccuracies like the statements of the altitude of the State Sanatorium at Rutland, the inexcusable mistake of using the word "sanitoria" in two places and several instances of vague and poorly expressed sentences suggest carelessness in preparation and the need of an intelligent proofreader before publishing a book which has a good deal that is useful in suggestion to the general reader.

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NEWER METHODS OF WATER PURIFICATION.

ONE of the most difficult problems presented to chemists, engineers, microscopists and others who are engaged in the study of public water systems is the prevention of the bad taste and foul odor which frequently prevail in the many water supplies throughout the country. In some instances the appearance of such foul tastes and odors is a matter of yearly visitation, and not infrequently is of such intensity as to induce very many to resort to the use of spring waters, some of which have been drawn from polluted sources, so that epidemics of disease have resulted from the use of waters, which, although clear and sparkling to the taste, yet were dangerously polluted.

The cause of the foul taste and odor is invariably found to exist in the presence of different sorts of algæ, which multiply rapidly in open reservoirs and ponds, and especially in ground waters which have been stored in such open reservoirs after pumping from the ground. This serious trouble has occurred in connection with many of the different water supplies of Massachusetts, notably at Springfield, Fitchburg, Brockton, Holyoke, Haverhill, Woburn, Waltham, Amherst, Orange, Concord and other places. At Newton, Brookline, Wellesley and Hyde Park the difficulty has been overcome by the introduction of covered reservoirs to exclude the light. But in the case of large, open reservoirs, this course is impracticable.

Within the past three years a series of experiments has been instituted by the Department of Agriculture at Washington, supplemented by the State Board of Health of Massachusetts, for the purpose of determining whether this condition might not be prevented. The report of Prof. George T. Moore and Karl F. Kellerman, published May 7, 1904, gives the results of these experiments, to the effect that extremely dilute solutions of sulphate of copper may be depended upon to accomplish the desired result of destroying objectionable algæ and preventing their reappearance. In addition to this valuable discovery is the possibility of employing the same agency, not only for the destruction of pathogenic organisms, but for the treatment of certain germ diseases. Dr. Salomon of New Orleans claims that by the administration of salts of copper, severe cases of typhoid fever became converted into a simple, benign fever, with recovery in ten or twelve days.[1]

The following summary of experimental investigations is published in the report of Professor Moore:

The disagreeable odors and tastes so often present in drinking water are due almost exclusively to algæ, although the economic importance of studying these plants has not been recognized until recent years.

These algal forms are widely distributed, and reservoirs in many states have been rendered unfit for use by their presence.

The methods now known for preventing or removing the odors and tastes caused by algæ have proved unsatisfactory, either because of prohibitive expense or failure to accomplish result.

It is, therefore, desirable that some new, cheap, harmless and effective method be devised for ridding reservoirs of these pests.

It has been found that copper sulphate in a dilution so great as to be colorless, tasteless and harmless to man, is sufficiently toxic to the algæ to destroy or prevent their appearance.

The mode of application makes this method applicable to reservoirs of all kinds, pleasure ponds and lakes, fish ponds, oyster beds, water-cress beds, etc. It is also probable that the method can be used for the destruction of mosquito larvæ.

At ordinary temperatures, 1 part of copper sulphate to 100,000 parts of water destroys typhoid and cholera germs in from three to four hours. The ease with which the sulphates can then be eliminated from the water seems to offer a practical method of sterilizing large bodies of water, when this becomes necessary.

The use of copper sulphate for the prevention of disease is regarded as incidental, and is not designed in any way to supplant efficient preventive measures now in use. It is believed, however, that up to this time no such satisfactory means of thoroughly, rapidly and cheaply sterilizing a reservoir has been known. Since the selective toxicity of copper sulphate renders it fatal to pathogenic forms peculiar

[1] New Orleans Medical and Surgical Journal, June, 1902.

to water, while the saprophytic or beneficial bacteria are unaffected, the method is particularly well adapted for this purpose.

Definite knowledge in regard to what organisms are present, the constitution of the water, its temperature, and other important facts are necessary before it is possible to determine the proper amount of copper sulphate to be added. A microscopical examination thus becomes as important as a bacteriological or chemical analysis.

No rule for determining the amount of copper sulphate to be added can be given. Each body of water must be treated in the light of its special conditions.[2]

In an editorial in the *Medical Record* of April 16,1904, we are surprised to find Professor Moore's announcement characterized in the most hasty manner as absurd " and contrary to all scientific views on the subject of water purification." But science is progressive, and the great discoveries of past centuries, the different applications of steam and electricity to locomotion and other purposes, the discoveries of medicine, anesthesia, and even vaccination have all been ridiculed in their turn. So far as Massachusetts is concerned, remarkable progress has been made in the study of its many public water supplies in the past twenty years. Its methods and discoveries have been adopted far and wide, since the state, through its board of health, has become recognized as a leader in scientific progress. The principles involved in the discovery of the normal chlorine of different regions, the covering of ground water reservoirs, the value of sand filtration, and other important matters connected with the study of water supplies, have proved to be of great value in securing to the people abundant supplies of pure water, and in reducing to a minimum epidemics of disease which in early years were of frequent occurrence.

The " simple, safe, effective and available " plan advised by the *Medical Record*, that of boiling the water, is applicable only to the individual taker, and is, consequently, utterly unheeded in the majority of instances. It cannot be applied to large bodies of water at the source or fountain head. Moreover, the foul tastes and odors for which a remedy was mainly sought by Professor Moore are but little influenced by the process of boiling. The dogmatic assertion of the *Record* that " simple drainage is always available for stagnant bodies of water of any sort," and that " scum can be easily disposed of by ordinary filtration," show a surprising lack of knowledge, both of chemical and engineering problems, " equalled only by the absurdity of the proposition."

The work of Professor Moore has passed the laboratory stage, and he reports several successful instances of the application of the copper treatment to large bodies of water, in proportions varying from 1 to 4,000,000 to 1 to 50,000,000. When we consider that millions of pounds of French vegetables, treated with quantities of the same substance in proportions vastly larger than those recommended by Professor Moore, are eaten without obvious harm to the consumer, the danger apprehended by the *Medical Record* fades out of sight.

[2] " A Method of Destroying or Preventing the Growth of Algæ and Certain Pathogenic Bacteria in Water Supplies," by Geo. T. Moore and Karl F. Kellerman. U. S. Dept. of Agriculture, Bureau of Plant Industry, Washington, May, 1904.

REPORT OF THE MASSACHUSETTS STATE BOARD OF INSANITY.

A PUBLIC document of perennial interest is the report of the State Board of Insanity, which has now completed its fifth year of service. The general activity which has been manifested during the past few years in the more adequate care and closer study of the insane is well exemplified in this yearly report, which shows unremitting activity on the part of those in charge in the attempt to solve the difficult problems which this class of dependents presents. A comparison of statistics for the last five years shows that there is an average annual increase of about four hundred individuals for whom public provision is required. This naturally leads to the complaint, which apparently can never be wholly allayed, of overcrowding in the public hospitals and asylums. At present there are in use 1,733 beds in corridors and day rooms, of which upwards of a thousand must be removed each morning to make sufficient space for patients during the day. The operation of the new State Care Act has furthermore led to the necessity of receiving at the state institutions about 650 insane inmates of almshouses. It, therefore, becomes at once apparent that there is imperative need of further accommodations, although the present situation will be in a measure mitigated by the liberal appropriation made by the last legislature. The board recommends that provision for the annual increase should be made in connection with existing institutions as follows: Hospitals for the acute curable class; industrial and home colonies for the quiet, harmless and able-bodied insane; infirmaries for the sick and feeble; buildings especially adapted for the care and treatment of chronic patients who are disturbed; farm houses for farm working patients; tuberculosis pavilions. In addition it

is recommended that separate houses be provided for nurses and private residences for superintendents.

On Oct. 1, 1903, the total number of insane in public institutions was 8,610. Adding to this number those in private institutions and certain others not counted in the original estimate, the total number is raised to 9,802, of whom 9,729 were permanent residents of the state. Interesting and important statements follow regarding the present status and the needs of the individual hospitals of the state, and statistics are also provided of smaller private institutions. The method of so-called farm care of the insane has apparently justified the hopes of its promulgators. One hundred and forty-four patients were so treated during the year, which was a gain of 26 over the preceding year. In general, this report affords information of the work being done throughout the state in this increasingly important department of medicine, and one may no longer doubt that the insane are receiving the care and attention and even the personal study and investigation which not many years since was certainly not the fact. It is to be hoped that this work, closely allied as it is in many respects to the other branches of medicine, may come into closer and closer relationship with the investigation of other forms of disease, and that a completer co-operation may exist between hospitals devoted to the insane and hospitals from which this class is excluded.

MENTAL DISEASE IN GENERAL HOSPITALS.

THE suggestion made in the preceding paragraph has been realized for many years in certain European hospitals, and is coming at last to be recognized as feasible in America. We refer especially to the possibility of a ward or wards in connection with general hospitals where insane patients may be studied and treated under the same conditions as those suffering from bodily disease of other character. A very interesting statement has recently been made in the May number of the *Albany Medical Annals* by Dr. J. Montgomery Mosher regarding the success of such an experiment at the Albany Hospital. Dr. Mosher describes the working of what is known as pavilion F of that hospital, which is devoted to the treatment of mental disease. He makes the comment that an illustration of the fellowship of mental and physical disease is given by the fact that twenty-four patients have been transferred to pavilion F from the other wards of the hospital. Certain patients, on account of the undesirability of forcible detention, are not received in this ward, but there are left, as a glance at the table of diseases shows, a large number of mental and quasi-mental conditions which might be treated with advantage not only, we believe, to the patients, but also to the hospital as a center of general medical effort. Naturally, these cases are largely of an acute sort, as are the other cases in the ordinary general hospital, and the element of observation and proper disposition must play an important part in the work of such a ward. Furthermore, this department of the Albany Hospital has been open to students of medicine under the same conditions as the other departments. The extraordinary neglect which the general subject of mental disease receives at the hands of the ordinary medical student is thereby in great measure obviated, and, even more important than this, the medical student is made to realize that diseases of the mind should be regarded as in the same general category with the diseases of the body.

We are glad to call attention to this progressive step on the part of the Albany Hospital. A similar plan was discussed some years ago in connection with the Boston City Hospital, but no definite action has, as yet, been taken. The example will, however, undoubtedly be followed by other prominent hospitals, and we may surely look forward to the time when this type of disease, as well as certain others which now are excluded in many institutions from the wards, will be given equal privileges with those diseases which apparently at the present time enjoy a special prerogative. A step in this direction has also recently been taken by New York in the approval by Governor Odell of a bill authorizing the city to establish a reception hospital for the insane. It is not our purpose, at this time, to discuss the relative merits of a system which will provide a separate hospital building for the observation of mental disease or the plan of devoting a ward in an already established institution to the same end. In general, however, we are inclined to think that the multiplication of institutions is undesirable, both for financial and scientific reasons, if arrangements in existing nstitutions may be made. The question is certainly one which must be seriously considered by all large communities in the very near future. The apparent success of the Albany experiment should at least serve as a stimulus to the more conservative.

ANNUAL REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES.

The report of the Surgeon-general of the Public Health and Marine Hospital Service of the United States for the year 1903 is published in the same form as for previous years, with the exception that no transactions are included beyond the end of the fiscal year, thereby reducing somewhat the bulk of the annual report. Much of the matter heretofore published in the annual report is now presented in the several bulletins of the service, which also tends to reduce the size of the report. Naturally in a publication of this character a large part of the contents is concerned with statistical matter. That part which appeals rather to the general physician is the division of scientific research. This division of the service includes in its work a review of medical and scientific journals and careful indexing of all subjects concerning communicable diseases in relation to the public health. These references are naturally growing rapidly and should prove of positive value. It is clear from the perusal of these pages that there is much activity in various lines of original research, which is certainly one of the ends for which this department of the public service exists. The section of the report which is given the general heading of "miscellaneous division" includes various contributed articles and reports of autopsies, which is not only valuable as a report of unusual cases, but is again significant of the careful work which is now being done in the marine-hospital department. The report is embellished with a few excellent half tone microphotographs illustrating a case of *lipoma arborescens*.

MEDICAL NOTES.

Sir Henry Thompson's Memoirs and Fortune. — It is reported that Sir Henry Thompson, of London, left a fortune of £223,000, and some personal memoirs which are not to be published for ten years.

A Centenarian Life Insurance Policy Holder. — Charles Henry Booth died recently in Englewood, N. J., in his one hundred and first year. He took out a life insurance policy in the New York Mutual in 1843, and was supposed to be the oldest holder of a life insurance policy in the world.

Faculty Re-organization — University of Pennsylvania. — A plan for the re-organization of the Faculty has just been approved by the Board of Trustees, whereby the Faculty members ship has been extended to the Clinical Associated and Assistant Professors, to the Associates and Lecturers, and to limited representation from the subordinate staff. The scheme provides for an executive body or council, to be composed of the heads of the departments in the fundamental subjects and two representatives of the specialties. The plan will be put into effect Sept. 1, 1904.

Monument to Benjamin Rush. — The Rush monument committee of the American Medical Association announces that the projected monument to Benjamin Rush will be unveiled and dedicated June 11, on the grounds of the Naval Museum of Hygiene and Medical School in Washington. The introductory address will be made by the president of the American Medical Association; a eulogy of Rush will be given by Dr. J. C. Wilson, and the monument as a gift to the nation will be accepted by the President of the United States.

Dr. Charles A. Oliver Guest of the British Medical Association. — Dr. Charles A. Oliver of Philadelphia, Pa., has been chosen by the British Medical Association as its official guest from the United States for its seventy-second annual meeting, which is to take place in Oxford, England, in July. With him are associated Professor Hirschberg of Berlin, representing Germany, and Dr. Javal of Paris, representing France. During his stay Dr. Oliver will reside at Keble College as the personal guest of Mr. Robert Walter Doyne, the president of the ophthalmological section of the association and lecturer on ophthalmology at Oxford University.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 1, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 58, scarlatina 18, typhoid fever 7, measles 96, smallpox 0.

Death from Glanders. — A death from glanders is reported from Fall River, Mass.

Trauma as a Cause of Appendicitis. — A verdict for $4,000 damages was recently awarded by the Supreme Court, sitting in Boston, to the driver of a brewery wagon who was injured by collision with a car of the Elevated Railroad Company in August, 1890. The injured man had previously been in good health. There was

a blow upon the abdomen. In November, 1902, he was operated upon for appendicitis. The attending physician testified that the plaintiff had symptoms of appendicitis between the time of the accident and the time of the operation. The operating surgeon testified that trauma was a cause of appendicitis. For the defence there was expert surgical testimony that trauma was not recognized as a cause of appendicitis. The case apparently turned upon the question whether trauma was or was not a cause of appendicitis, and has an especial interest from that point of view.

NEW YORK.

A CENTENARIAN. — Carlos P. Scovill, the oldest ex-member of the legislature in New York State, died on April 27 at Lowville, N. Y., at the age of one hundred years. He was born in Collinsville, Lewis County, N. Y., on Feb. 26, 1804. Mr. Scovill served for some time in both the Assembly and State Senate, and afterwards as Surrogate Judge of Lewis County for eleven years.

PRESIDENT OF BOARD OF POLICE SURGEONS. — At a meeting of the Board of Police Surgeons held on May 23 Dr. Stephen G. Cook was elected president of the board for the eighteenth time. During the last municipal administration an innovation was made as regards the long prevailing custom of permitting the police surgeons to choose their own president, and General Greene, the police commissioner under Mayor Low, appointed Dr. Edward T. T. Marsh the chief executive of the board. The present commissioner, Mr. McAdoo, returned to the former practice and Dr. Cook was again elected president. It is announced that Dr. Marsh will shortly be retired on a pension.

Correspondence.

THE GAME OF QUARANTINE AS PLAYED AT NAPLES.

ROME, May 17, 1904.

MR. EDITOR: Before my vivid impressions of a recent experience fade, I am impelled to record a roughly outlined sketch, although I can do but scant justice to a scene in which were condensed more extraordinary and absurd incidents than are presented in the average comic opera.

Before going aboard a Messageries steamer at Alexandria which was bound for Marseilles via Naples, a few days ago, all passengers were required to sign a paper declaring upon honor that they had not visited certain ports on the Red Sea littoral (where the existence of bubonic plague was more than suspected) within ten days. This was truthfully done, in my own case at least, and the incident regarded as closed.

Next day, however, the ship was full of rumors of impending trouble with the quarantine authorities at Naples (of all places!), but reassured by past experience, and the well known laxity of the port officials, we settled down to the enjoyment of fine weather and a very fair sea boat. Three days later we came to anchor about a mile from the city and sat down to dinner while the (presumably) perfunctory sanitary inspection should be carried out.

The Naples contingent was looking forward with pleasurable anticipation to getting ashore at a seasonable hour and sleeping in comfortable beds, when a peremptory summons of "All table stewards on deck for quarantine inspection," left us to digest as best we could such portions of the meal as had been served. The worst had come, and gloomy predictions of long detention and inconveniences of all sorts were rife.

Half an hour later our waiters reappeared and the dinner ended far less cheerfully than it had begun; the tables were hastily cleared and all hands bidden to remain in the dining saloon, the doors of which were closed and guarded by quarantine officials of unsanitary aspect.

Presently we were herded on the upper deck, our numbers being loudly proclaimed as we filed up the gangway. Here we remained for quite a time, those of us who were near the staircase constantly peering over the railing and trying to see what was going on at the foot of the steps where three Italian officials were holding earnest council which lasted for what seemed an interminable period of time.

Suddenly they were joined by one of the ship's officers, who shouted: "But one hundred and seventy-seven and five, plus the insane English tourist, make a total of one hundred and eighty-three!" a statement which was instantly greeted with derisive laughter, and cries of "Bravo," "*Bien raisonne*" and "Quite right you are, old man," on the part of the passengers who, having failed thus far to extract much fun from the situation, now cut loose and entered into the spirit of the occasion which was almost unique, comprising as it did an attempt by the Neapolitan quarantine officials to be taken seriously, and to play the game for all it was worth. So general hilarity prevailed and we swarmed below again and awaited the next move.

There was apparently nothing doing, when I was casually informed by a fellow passenger (no announcement having been made) that it would be well to communicate with a solemn-looking person who was seated at one of the tables with official-looking papers spread out before him.

In answer to my inquiries he told me that such of us as intended disembarking at Naples must appeal before him to obtain their sanitary clearance papers, and at once proceeded, without question or delay, to furnish me with a document to which I shall refer later on. Soon the entire Neapolitan contingent was similarly equipped, the doors were thrown open and we were permitted to wander at will over the ship, but not to leave her until something further (nobody seemed to know just what) should be accomplished. At this junction about forty itinerant vendors of tortoise-shell and coral ornaments swarmed up the ship's side; but upon being asked if they "wished to acquire the bubonic plague" fled precipitately to their boats, the usual floating orchestras and singers, meanwhile, regaling all and sundry with "Santa Lucia," etc.

An hour passed when there suddenly appeared several reincarnations of Morgan and Kidd arrayed in particularly dirty yellow blouses reaching nearly to their boots. Some carried paste pots and pink labels, while others had bottles of disinfectants in the form of powders. What was done (if anything) with the latter I cannot say (if the bottles contained bichloride of mercury and they had swallowed it, I am confident that it would have been beneficial to the public health), but such of the buccaneers as carried the paste pots proceeded to affix the pink "etiquettes" (certificates of disinfection) to all the hand luggage.

At last we were free to depart? Not so, for one of the ship's officers rushed up and asked me, "What I supposed they said now, those idiots of sanitation?" and not waiting for a reply: "*Que toute la linge sale doit passer par l'éuve!*" 'But,' I objected, "everything is packed and each piece

is already certified." "That makes no difference — they are crazy — I have been here many times before, and have never seen anything like this — I beg you, for the love of God, to go and find something — an odd sock, an old undershirt, what you will, and deposit it on that commode at the foot of the stairway. Persuade your friends to do the same, or you will never get ashore, and we shall never get this sacred ship out of port!" I at once complied, but so far as I observed, with the exception of a young lady who tossed some sort of a garment from which hung a narrow blue ribbon near my personal offering to Hygeia and hastily withdrew, nobody paid the least attention to the order, and again we waited. Nobody's pulse or temperature had been taken, and aside from the names of the hotels where we intended staying, no questions had been asked. All at once a lot of children *from the steerage* were brought into the saloon for inspection. One of them had such a well-marked case of measles that a second year medical student could have diagnosed it correctly at a distance of twenty feet. This was the last straw, and the Latin element among us expostulated vigorously. One Frenchman made a speech in which the words "*terrible*," "*ignoble*" and "*effroyable*" were prominent. A lady of noteworthy pulchritude whom I tried to reassure by saying that it was only measles (a majority apparently thought it was a case of bubonic plague) immediately became quite hysterical — she had three children in Paris, and of course would carry it to them! But upon being told by a gallant fellow countryman that it was simply impossible that one so young could by any chance be "*mère de famille*," she calmed down, and smiled through her tears.

Meanwhile the children had been hustled out, the excitement gradually ceased, and at midnight a weary and angry crowd were landed in a tug. At the custom house the usual bribe produced the usual result. Nobody paid the slightest attention to our pink "etiquettes" or to the documents to which I have referred.

Mine informs me that "El Signor Smith e Signora are to be subjected to sanitary vigilance for the space of six days," and that "in accordance with the ordinance of Maritime Sanitation of Feb. 23, 1902, he must report himself to the health authorities of each commune that he may visit for a further period of ten days, or be denounced to the judiciary," etc. Something (surely it cannot be my New England conscience) tells me that I shall *not* report myself nor be "denounced" any more than I have been "subjected to sanitary vigilance." "What would you do," I asked the proprietor of my hotel, "if you had been served with a document like this?" His answer was a shrug and a motion to deposit it in the waste paper basket; but I reclaimed it and send it to you as documentary evidence,— a sort of "Exhibit A," — and remain,

Yours truly,

James A. Smith, M.D.

TECHNICAL TERMS MAY BE MISINTERPRETED.

The following correspondence, sent to us by a surgeon of the Boston Dispensary, explains itself:

To the Doctor at Dispensary: Please give this boy's hand attention as I think a bone is out of place.

Respectfully,

K. E. L., *Teacher, Public School.*

The note was endorsed by the surgeon: "There seems to have been a 'green stick' fracture of the metacarpal," and sent back to the teacher by the scholar. In due time it was brought back to the surgeon by the scholar with this addendum from the teacher: "I can't quite understand the chirography. Is that 'queer stick' or 'green stick'? In either case I am *happy* to say that the learned M.D. is mistaken as to the cause. Little 'Abie' loves his teacher and his teacher reciprocates to the extent of 'sparing the rod' in this particular case. All masculines are not exempt, however." K. E. L.

RECORD OF MORTALITY

For the Week ending Saturday, May 21, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Measles.
New York	3,908,644	1,566	467	29.82	18.39	3.13	.25	2.49
Chicago	2,021,066	483	121	21.73	16.97	1.44	1.03	.20
Philadelphia	1,407,968	477	132	31.86	15.09	2.72	.41	1.25
St. Louis	625,606	—	—	—	—	—	—	—
Baltimore	542,220	185	43	27.56	7.57	—	—	—
Cleveland	444,331	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	112	—	20.53	16.07	2.67	.89	2.67
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	65	20	13.84	18.45	—	—	—
Boston	617,950	203	33	23.15	14.28	2.46	.49	1.97
Worcester	136,925	25	12	4.00	16.00	—	—	—
Fall River	119,849	28	10	42.85	14.28	7.14	—	—
Lowell	104,402	26	9	15.38	7.69	—	—	3.84
Cambridge	100,926	20	6	25.00	—	5.00	—	—
Lynn	73,878	33	3	12.04	—	—	—	—
Lawrence	73,348	15	4	20.00	6.67	—	—	—
Springfield	73,030	19	1	5.26	15.79	—	—	—
Somerville	70,413	19	3	26.05	—	—	—	—
New Bedford	68,868	24	7	12.50	33.33	—	—	—
Holyoke	50,338	12	6	16.67	8.33	8.33	—	—
Brockton	46,901	16	3	25.00	6.25	—	—	—
Newton	39,310	10	2	20.00	—	—	—	—
Haverhill	39,061	13	0	15.40	15.40	—	—	—
Malden	37,308	12	1	16.67	—	—	—	—
Salem	37,188	7	—	14.30	14.30	—	—	—
Chelsea	36,499	13	3	15.40	15.40	—	—	—
Fitchburg	36,335	8	1	—	12.50	—	—	—
Taunton	34,577	—	—	—	—	—	—	—
Everett	30,309	5	—	—	—	—	—	—
North Adams	29,901	9	3	33.33	33.33	11.11	—	—
Quincy	26,798	5	2	80.00	—	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	4	1	25.00	—	—	—	—
Brookline	23,676	9	—	33.33	—	—	—	—
Pittsfield	22,870	10	2	30.00	10.00	—	—	—
Medford	21,956	3	—	33.33	33.33	—	—	—
Chicopee	21,892	3	1	—	33 33	—	—	—
Northampton	20,314	10	1	20.00	—	—	—	—
Beverly	15,807	5	—	—	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	4	2	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	—	—	—	—	—	—	—
Newburyport	14,478	6	1	16.67	—	—	—	—
Woburn	14,315	4	—	50.00	—	—	—	—
Melrose	13,819	4	—	—	25.00	—	—	—
Westfield	13,809	4	—	25.00	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,689	4	4	75.00	—	—	—	—
Revere	13,609	—	—	—	—	—	—	—
Framingham	13,974	1	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	13,334	2	2	—	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	5	—	20.00	—	—	—	—
Weymouth	11,350	3	0	33.33	—	—	33.33	—
Plymouth	11,180	—	—	—	—	—	—	—

Deaths reported, 3,481; under five years of age, 905; principal infectious diseases (smallpox, measles, scarlet fever, cerebro-spinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 927; acute lung diseases 556, consumption 444, scarlet fever 32, whooping cough 9, cerebro-spinal meningitis 87, smallpox 5, erysipelas 15, puerperal fever 13, measles 53, typhoid fever 54, diarrhœal diseases 132, diphtheria and croup 82, influenza 1.

From whooping cough, New York 5, Chicago 1, Philadelphia 1, Pittsburg 1, Lowell 1. From smallpox, Philadelphia 5. From cerebro-spinal meningitis, New York 82, Philadelphia 1. Boston 1, Lowell 1, Marlboro 2. From erysipelas, New York 4, Chicago 5, Philadelphia 2, Pittsburg 1, Boston 1, Lowell 1, Weymouth 1. From typhoid fever, New York 8, Chicago 5, Philadelphia 30, Baltimore 1, Pittsburg 6, Boston, Brockton, Medford and Newburyport 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending May 7, the death-rate was 14.9. Deaths reported 4,359; acute diseases of the respiratory organs (London) 83, whooping cough 195, diphtheria 51, measles 158, smallpox 5, scarlet fever 32.

The death-rate ranged from 43 in Smethwick, to 26.5 in St. Helens; London 14.9, West Ham 13.7, Brighton 12.4, Southampton 16.7, Plymouth 21.5, Bristol 13.1, Birmingham 17.0, Leicester 11.9, Nottingham 9.6, Liverpool 18.6, Bolton 13.9, Manchester 23.1, Salford 20.0, Bradford 16.3, Leeds 17.5, Hull 17.7, Cardiff 10.4, Rhondda 13.6, Wigan 19.1, Merthyr Tydfil 23.7, Reading 15.7, Wallasey 12.1.

METEOROLOGICAL RECORD.

For the week ending May 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S..15	29.82	49	50	48	87	100	94	N E	N E	14	15	O.	R.	T.
M..16	29.80	56	62	49	84	57	70	N E	W	7	11	O.	C.	.27
T..17	30.02	58	68	48	59	65	62	S W	S W	8	2	O.	O.	0
W..18	29.95	52	56	49	92	97	94	N	E N E	18	8	O.	R.	.12
T..19	29.82	49	51	47	90	96	93	N	N	11	6	O.	O.	.98
F..20	29.70	60	69	50	86	69	78	S W	W	7	6	O.	C.	.03
S..21	29.84	66	78	54	61	51	56	N W	S	10	14	F.	O.	T.
☞	29.85			62	49		78							1.40

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 28, 1904.

C. D. LANGHORNE, passed assistant surgeon. Detached from the "Monongahela" and ordered to the "Denver."

H. L. BROWN, assistant surgeon. Detached from the "Lancaster" and ordered to the Naval Station, Guantanamo, Cuba, with additional duty on the "Monongahela."

J. H. IDEN, assistant surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

J. FLINT, assistant surgeon. Ordered to the Naval Hospital, Chelsea, Mass.

H. A. MAY, assistant surgeon. Ordered to the "Franklin."

E. EAGLING, pharmacist. Retired. Detached from the Naval Hospital, Yokohama, Japan, and granted leave abroad.

C. T. HIBBETT, surgeon. Detached from the "Franklin," June 1, and ordered to duty in charge of the Naval Hospital, Cavite, P. I., sailing from San Francisco, Cal., June 11.

A. R. WENTWORTH, surgeon. Ordered to the "Franklin," June 1.

P. A. LOVERING, surgeon. Detached from duty in charge of the Naval Hospital, Cavite, P. I., and ordered home to wait orders.

F. M. FURLONG, passed assistant surgeon. Ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., for temporary duty.

P. E. MCDONNOLD, assistant surgeon. Ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., for temporary duty.

J. L. BELKNAP, assistant surgeon. Ordered to the Naval Hospital, New York.

L. H. WHEELER, assistant surgeon. Ordered to the Naval Hospital, Chelsea, Mass.

E. EAGLING, pharmacist, having been examined by a retiring board and found incapacitated for active service, on account of disability incident thereto, is retired from active service, May 19, 1904, under the provisions of section 1453, revised statutes.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 28, 1904.

CARTER, H. R., surgeon. Two days' leave of absence from May 26, 1904, under paragraph 189 of the regulations.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for fifteen days from May 6, 1904, on account of sickness. May 20, 1904.

CLARK, TALIAFERRO, passed assistant surgeon. To proceed to Duluth, Minn., for special temporary duty. May 20, 1904.

ANDERSON, J. F., passed assistant surgeon. To proceed to Hartford, Conn., for special temporary duty. May 20, 1904.

DUFFY, FRANCIS, acting assistant surgeon. Granted leave of absence for two days from May 25. May 23, 1904.

HOUGH, J. S., acting assistant surgeon. Granted leave of absence for thirty days. May 23, 1904.

HUNTER, W. R., acting assistant surgeon. Granted leave of absence for seven days from May 22. May 21, 1904.

WETMORE, W. O., acting assistant surgeon. Granted leave of absence for seven days from May 17, 1904, under paragraph 191 of the regulations.

HALL, L. P., pharmacist. To report to Chairman of Examining Board at Norfolk, Va., May 31, 1904, for examination to determine his fitness for promotion to the grade of pharmacist of the second class. May 23, 1904.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., May 26, 1904, for the physical examination of candidates for admission into the Revenue Cutter Service. Detail for the board: Assistant Surgeon-general L. L. Williams, chairman; Assistant Surgeon-general W. J. Pettus, recorder.

Board convened to meet at Norfolk, Va., May 31, 1904, for the examination of Pharmacist L. P. Hall to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Surgeon J. B. Stoner, chairman; Assistant Surgeon J. S. Boggess, recorder.

RECENT DEATHS.

THEODORE OSGOOD CORNISH, M.D., M.M.S.S., died in South Boston, May 23, 1904, aged eighty years.

EDWIN GAILLARD MASON, M.D., of New York, died at the home of his father, Dr. A. S. Mason, at Hagerstown, Md., on May 24. He was born at Hagerstown and was thirty-nine years of age. He was graduated from Bellevue Hospital Medical College in 1887, and practiced in New York throughout his professional career. For several years he was assistant professor of diseases of the nervous system at the New York Polyclinic Medical School and one of the editors of *Gaillard's Medical Journal*. Among the other positions that he held were those of vice-president of the New York County Medical Association and vice-president of the Southern Society of New York.

SOCIETY NOTICES.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION. — The annual meeting of the American Gastro-Enterological Association will be held at Atlantic City, June 6 and 7, 1904.

AMERICAN OTOLOGICAL SOCIETY. — The thirty-seventh annual meeting of the American Otological Society will be held this year at the Hotel Chelsea, Atlantic City, N. J., on Monday and Tuesday, July 11 and 12, at 10 A.M.

FREDERICK L. JACK, M.D., Secretary.

CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA. — The nineteenth annual meeting of this organization will be held at Washington, D. C., Friday and Saturday, June 3 and 4.

GARDNER T. SWARTS, M.D., Secretary.

Providence, R. I.

APPOINTMENT.

Dr. Charles M. Green has been appointed Associate Professor of Obstetrics and Professor of Clinical Gynecology at the Medical School of Harvard University.

BOOKS AND PAMPHLETS RECEIVED.

The Therapeutics of Mineral Springs and Climates. By I. Burney Yeo, M.D., F.R.C.P. Chicago: W. T. Keener & Co., 1904.

The Practical Application of Cryoscopy to Medicine. By Henry W. Catteli, A.M., M.D. Reprint.

Annual Report of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States. For the fiscal year 1903. Washington, 1904.

Transactions of the American Pediatric Society. Fifteenth Session. Held at Washington, D. C., May 12, 13 and 14, 1903.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. Lond., D.P.H. Eleventh Edition. London: H. K. Lewis. 1904.

Radium, Radio-active Substances and Aluminum with Experimental Research of the Same. By Myron Metzenbaum, B.S., M.D. Reprint.

Specimen of Pseudarthrosis or False Joint of the Ulna. By Myron Metzenbaum, B.S., M.D. Reprint.

Malposition of the Head (Torticollis, Canted or Tilted Head), with resultant Ill-health, Spinal Curvature, etc., due to Eye-strain. By George M. Gould, M.D. Reprint.

Address.

PROGNOSIS; ITS THEORY AND PRACTICE.[1]

BY GEORGE DOCK, M.D., ANN ARBOR, MICH.

THE topic I have ventured to bring before you is "Prognosis; Its Theory and Practice." As a text, let me quote from the oldest work we have on this subject,[2] which, though old, still has the freshness and modernism that genius gives to human productions:

It appears to me [said the Father of Medicine] a most excellent thing for the physician to cultivate prognosis; for by foreseeing and foretelling, in the presence of the sick, the present, the past and the future, and explaining the omissions which patients have been guilty of, he will be the more readily believed to be acquainted with the circumstances of the sick; so that men will have confidence to entrust themselves to such a physician. And he will manage the cure best who has foreseen what is to happen from the present state of matters. For it is impossible to make all the sick well. This indeed would have been better than to be able to foretell what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived perhaps only one day or a little longer, and before the physician could bring his art to counteract the disease, it therefore becomes necessary to know the nature of such affections, how far they are above the powers of the constitution. Thus a man will be the more esteemed to be a good physician, for he will be the better able to treat those aright who can be saved, from having long anticipated everything; and by seeing and announcing beforehand those who will live and those who will die, he will thus escape censure.

In this Hippocrates describes the essential importance of prognosis to the patient and the physician in relation to treatment. Besides this, prognosis is often important to relatives and dependents, not merely for reasons of sentiment, but in order to protect property and prevent unhappiness and destitution that would be as painful for the patient to contemplate as for the others to suffer. There is another aspect not present in the time of Hippocrates — giving the patient an opportunity to prepare himself for the anticipated life beyond the grave. In many cases, too, prognosis may have important bearings on political parties or for the commonwealth.

The patient very often ignores these needs. If he asks for anything, it is usually either the name of the disease or that of the medicine the physician intends to use. He really understands as little of the significance of the name as he does of the action of the drug, and is often more quickly satisfied in proportion as both answers are occult.[3] What really should interest him is, as clearly as his mental development permits, some idea of the changes in his body, anatomic and functional, their present seriousness, the chances of death, or of complete or partial recovery, with, in the latter case, the probability of temporary or permanent disability, near or remote, in some organs or functions.

Within the last century prognosis has lost some of its relative importance. Unlike etiology, diagnosis, prophylaxis and treatment, it has no special literature, and is only occasionally the subject of addresses or essays. But much of the so-called prognosis of the earlier periods was really diagnosis, as in Hippocrates' vivid description of empyema, and his remarks in regard to other diseases of the respiratory organs. It also seems a mistake to assume that practical prognosis was more accurate at any period than in later ages of equal enlightenment. While we may admit that great masters, like Hippocrates himself, Galen, Sydenham and Boerhaave, were remarkably accurate in their prognostications, there is no reason for thinking that the rank and file, following their rules without having their keenness of observation and precision of reasoning, were more accurate, or as accurate as physicians of a later period when the formal study of prognosis was neglected, but when other means of knowledge were greater than before. We must bear in mind a fundamental difference in methods. The older prognosis was based on the observation of symptoms alone, and consciously or unconsciously took the standpoint of humoral pathology or some equally imperfect theory. One charge against ancient prognosis is not as serious as some have thought, viz., that the prognosis was made without a definite diagnosis. Even now we sometimes have to be satisfied with a very imperfect diagnosis, and yet may make a very good prognosis, at least for the immediate future. But the older prognosis was almost wholly lacking in anatomic and totally without chemical basis. Realizing how far short of accuracy the diagnosis must have been in many cases, we can understand that prognosis must have failed almost as often. Moreover, in early medicine, most attention was paid to acute diseases, or the acute terminations of chronic diseases, so that the many important chronic diseases that now make so much of medical practice were comparatively neglected.

Whatever shortcomings medicine may have — and those who cultivate the subject most thoroughly feel the needs most deeply — it must be admitted that diagnosis is much more certain than ever before. Not only are we able to distinguish more quickly and more accurately many diseases long known, such as some of the acute fevers, malarial disease, tuberculosis, diphtheria and pneumonia, but we have learned

[1] Oration in medicine at the fifty-fifth annual session of the American Medical Association at Atlantic City, June 7 to 10, 1904. Published through the courtesy of the Journal of the American Medical Association.

[2] The Book of Prognostics: the genuine works of Hippocrates, Adams' translation, vol. i.

[3] Striking examples of the virtue of mysterious names are conspicuous in the practice of the popular sect of osteopaths. I could give many examples of the license with medical terms among these people, but as the evidence is derived wholly from patients I cite only one that can be vouched for by medical eye-witnesses. A hospital patient with typhoid fever, with the neck pain not infrequently felt in that disease, requested that his osteopathic physician be allowed to treat him. I was not unwilling, especially as the osteopath gave assurances that he would not attempt to treat the typhoid fever. Two internes "assisted" at the treatment. The osteopath, one of the *sang azul* of his class, after feeling the neck, announced that the transverse processes of three cervical vertebræ were displaced on one side. After some manipulation he pronounced the displacement relieved, though I was sorry to see that the pain was not much less than before.

the existence and the means of detecting many diseases formerly confused with others. As examples, let me name only a few, such as the diseases originating in the vermiform appendix and the gall bladder, diseases of the pancreas, many diseases of the blood, a large number of diseases of the nervous system and of the ductless glands, and many diseases caused by animal parasites, of which the sleeping sickness is the most striking example at present.

The older prognosis, far from being negligible, is really of fundamental importance. It gives the accumulated experience of ages that, untrammeled by detail, carefully noted broad and elementary features of disease. As gathered together in the aphorisms and prognostics of Hippocrates, and in the numerous commentaries on them — not always improving the original — it furnishes a fund of inestimable value, but like everything else in medical art, this knowledge is less useful when applied mechanically than when worked over in the crucible of personal experience, tested by other methods and transposed into current formulæ.

Older prognosis was possible to collect into fairly circumscribed space, but this is no longer true.[4] In proportion as diagnosis has become subdivided, specialized and enlarged, and as knowledge of morbid processes has become more complex, so prognosis has become more intricate. Older prognosis was based on broad, symptomatic lines, qualified in practice, we may be sure, by a consideration of the patient's constitution. The present basis is diagnosis, but of a different kind. It means not merely a recognition of the name of the disease, but a knowledge of the nature of the disease, still incomplete, but rapidly gaining in fullness and accuracy. In many cases we know the causes, and a good deal of the nature of the causes; in many more we know the seats of the disease, and the anatomic, chemical and functional changes that result directly and indirectly. It is by the study of the altered functions that we can make a prognosis and plan useful treatment without knowing the name of the disease. Clinical and anatomic investigations have been aided by experiments and observations on lower animals, without which our knowledge would have been much less certain than it is. Scores of technical methods have been devised for reactions and explorations; natural forces previously unknown, such as the x-rays, have quickly been pressed into service. Long and painstaking observations have thrown much light on complications and sequels, their nature and detection. From all these things the prognosis proceeds naturally in most cases, but here again an indispensable part is a just recognition of the patient's constitution. It is probably true that in this connection we unduly neglect some prognostic aids furnished by the patient, such as changes of the physiognomy. But, on the other hand, we have much more accurate methods of ascertaining the constitutional factor than were formerly available. Constitution is still a somewhat vague term, but we can speak of it here as the result of the functions of all the organs. While the method of representing these functions is still inadequate, we can safely assert that we have much more accurate means of determining the condition of the heart, arteries and veins and the force of the circulation than we had before; we have gone considerably beyond the recognition of the apoplectic habit in foretelling the danger of vascular disease. We can usually estimate fairly well the efficiency of the blood-forming organs; we can determine with reasonable accuracy the capacity for work of the stomach and intestines, as well as a few details of nutrition and metabolism; we are rapidly getting beyond the limitations of Falstaff's water doctor in fixing the anatomic and functional ability of the kidneys, and we are working toward methods of testing the functions of liver, muscles and nerves. When we have all these factors thoroughly investigated it is probable there will be little need of the *vis medicatrix naturæ*, now an essential part of prognosis.

In the conclusion resulting from these things there is no room for a supposititious clairvoyance, an intangible gift of prophecy, a hypothetic intuition that trained intelligence cannot equal or industry surpass. We have a positive foreknowledge, a prescience, a prognosis, corresponding in accuracy and usefulness to our diagnosis and often in advance of our treatment.

In the foregoing I have spoken of the theory. In the practical use of prognosis the first to profit by that function is the physician. With an accurate prognosis, based on exact and thorough examinations, knowledge of the natural course of the disease and of the patient, the physician foresees the course of the malady and is prepared for changes, emergencies and complications. He is thus enabled not only to preserve his imperturbability, so essential in carrying out necessary measures of treatment, but he can also prepare the patient to meet coming events in better physical and mental condition than otherwise, and, what is often of even greater importance, the self-confidence thus shown stimulates the efforts and the compliance of others concerned in the case.

It is not easy to say how much the patient should share this foreknowledge, and how it should be conveyed to him. In many cases the patient does not ask an opinion, and in many others, either because the present disease seems too slight or for other reasons, the physician does not proffer one. Yet it is good mental discipline to work out the prognosis in every case, as a complement to the diagnosis, and in many the results should be stated to the patient. Many things may conspire to make such statements act either favorably or unfavorably on the patient as on the physician.

Physicians, like other people, can often be classified as either optimists or pessimists. Not

[4] I have not attempted to include prognostic details, but would refer those interested to "Observations on Prognosis," by P. H. Pye Smith, Guy's Hospital Reports, vol. xliv, 1887, as one of the most comprehensive and suggestive articles in modern literature.

that these tendencies affect all parts of the individual's activities. One may be a perfect Pangloss in sociologic, political or climatic matters, and yet take a gloomy view of all his patients. (I am not speaking of those who, rarer in the profession than in some of its parasitic growths, habitually exaggerate the danger of their cases, making every angina a diphtheria, every erythema an erysipelas and every bronchitis a threatened pneumonia.) Another who is perpetually cast down by the failure of democratic government or the need of a stronger one, the immorality of the rich and the rule of the bosses, may meet every case with hope and cheer.

But the practice of prognosis should be cultivated as objectively as any other part of medicine. Not only the therapeutic indications suggested by it, but also the human ones, should be carried out without fear or timidity, without unnecessary harshness, but also without the false benevolence that often does more harm than brutal frankness or ignorance. Here, as in other departments of medicine, the welfare of the patient must be the touchstone by which the action proposed should be proved.

No disease should be looked on as insignificant. Nothing seems less becoming than to hear medical men speaking lightly of disease in general, or of any disease in particular. It is no consolation to the mother whose child has died of one of the rare complications of chickenpox to find that many physicians think that too trival to concern themselves with it. Nor does it increase confidence in the profession to have hysteria and neurasthenia considered imaginary and ridiculous evidences of perversity, while the impatience, not to say lack of scientific interest, sometimes shown toward other less well-defined neuroses, undoubtedly has some relation with the crowded ranks of followers of isms of all kinds.

In acute diseases the best general rule is still that of Hippocrates (Prognostics; 19, sect. II): "In acute disease it is not quite safe to prognosticate either death or recovery." A case of this kind, however, should not be considered likely to die unless from a complication, or from the effect of a pre-existing disease, though in certain diseases, such as scarlet fever and diphtheria, the danger of a sudden change and of death should be made known in the beginning. Of course, in cholera and plague, and even in cholera infantum, such information is rarely necessary. In some other acute diseases the study of prognosis prepares the physician not to be unduly elated by the remissions that are so reassuring to relatives. The temporary amelioration in meningitis and peritonitis, in which the patient seems almost free from symptoms, may be mentioned. Less disappointing, but still ominous, is the occasional lull in bronchopneumonia. But in the cases I have just mentioned it is rarely advisable to bring the unfavorable probabilities too strongly before the patient. In these we often need the effects of reassurance and of hope. For the latter, as we see it in medical practice, is not merely the "kind nurse of old age — hope — which," as Pindar says, "more than aught else steers the capricious will of mortal man"; in acute cases especially it is distinctly stimulating to physical and mental processes. Sir Dyce Duckworth,[5] speaking from a ripe experience, recently gave an address on "Hopefulness in Medicine," in which he emphasized this fact, and Niemeyer, equally successful in his career, at his medical promotion defended among others the thesis *medicus semper hilaris*. On the other hand, it is a serious error not to point out, after recovery from certain acute diseases, the possibility of sequels, sometimes months or years afterward, and the advantage of examinations at intervals for the purpose of detecting them before they become inveterate. The thorough examination of the urine at intervals after scarlet fever, of the lungs after pleurisy and all bronchitic diseases, of the heart and arteries after many infectious diseases, often has great practical value.

In chronic diseases there are few exceptions to the rule that the patient should be told the nature of his case as fully as possible. At least, in patients who can be made to understand, and who have a possibility of recovery, of definite improvement or of long duration, there are only individual exceptions. Patients with tuberculosis, heart disease, kidney disease, and disease of the alimentary tract cannot get the best possible results unless they understand why and how they should do certain things and why they should avoid others. Tact and patience and a knowledge of human nature are essential in this. The statements made should be as simple as possible, as brief as definiteness permits, without pathologic explanations. Better no statement than an unconsidered or an unintelligible one.

In talks of this kind we too often forget how different are the ideas of non-medical persons, even those who have studied physiology in the public schools, from our own, regarding the body, its functions and diseases. I am always interested in seeing how soon medical students lose the lay point of view, just as one forgets an unused foreign language, and how sometimes they never recover it. Yet unless they do, they lack valuable means of giving aid. Darwin has noticed how everyone who studies profoundly a subject often becomes unaware on what points the ignorant require information. Carlyle, as John Beattie Crozier tells us, imagined his stomach as some old teakettle, thickly encrusted with fur, and I have seen an otherwise intelligent man on the point of using strong sulphuric acid for a cough, because he found by experiment that oil of vitriol dissolved sputum more quickly than any other reagent he had tried. Nor is it enough to make the explanation. We must ascertain whether the statements are understood, and, if possible, whether they are accepted. How often, even with an intelligent individual, after we have stated the existence of a small tuberculous focus, and described the results of rational treatment, we

[5] Duckworth, Sir Dyce: Opening of University of Liverpool Medical School, British Medical Journal, Oct. 3, 1903.

find the patient shutting himself in a dark and close room, taking "lung cures," cough syrups and more or less medicated cod-liver oil; and how often, after demonstrating the sufficiency of dietetic treatment in a digestive disease, we find the patient taking bitters, digestive ferments, usually well neutralized by alcohol, antiseptics and other drugs less easy to classify. So time and patience must be devoted to this part of the work, and we should never be discouraged by failure. I am convinced that there is an improvement in the possibility of carrying out rational treatment, notwithstanding the insidious propaganda of useless or dangerous methods in and out of medical journals.

It is much easier to advise in cases that have a strong tendency to recovery than in those that have not, and there is room for difference of opinion and of practice in the latter, because the conditions vary with patients according to individuality and accidental factors. A number of aspects present themselves for consideration. In the first place, there is often an element of diagnostic or prognostic uncertainty, where the prospects are better than they seem. Sir Dyce Duckworth [6] has formulated universal experience in pointing out the advantages of the "cautious 'if,'" and if the alternative accepted is the hopeful one, much good can be accomplished in many cases. An interesting example is given by Kussmaul in his fascinating "Jugenderinnerungen." Having made a reputation as a zealous dissector, and having won over his confiding peasants to the many advantages of post-mortem examinations, he was asked by the father of a girl with advanced tuberculosis of the peritoneum to arrange for an autopsy on the daughter, when she died. Although Kussmaul, too, thought the daughter was lost, he retorted that he could not speak of an autopsy until the patient was dead. Notwithstanding many obstacles, the girl recovered. The tendency to take the less hopeful alternative is still shown in some cases of tuoerculous disease in stages not far advanced, though it is not so common, fortunately, as it was not many years ago, to see such patients given over either to a life of dissipation or of abject despair. The prognosis of valvular disease of the heart is also in a much more optimistic vein than it was fifty or even twenty-five years ago. However, in many cases the prognosis needs to be tested by a therapeutic "if" that is not as well recognized as it deserves. The physical conditions may seem hopeless, and yet if the action of the heart can be improved the case may assume a very different aspect. The advantages of trying were well illustrated by a case in which a woman with aortic and mitral insufficiency and moderately severe loss of compensation was given up as beyond treatment by her family physician. Not knowing this I told the relatives the impossibility of complete recovery, the danger of sudden death or more probably rapid failure at any time, but also the possibility of improvement and a fairly comfortable life for some time, all the more worth trying to realize, because the condition was not complicated by medicinal action, and the other important organs showed no serious alteration. The family physician then wrote me admitting that he had stated improvement was out of the question, and treatment not worth trying, although under subsequent treatment the patient lived two years and nine months.

In cases hopeless in a more certain degree than such as I have just mentioned, it too often happens that treatment is abandoned too early in the case. Patients with cancer of the stomach or other inoperable tumors, cirrhosis of the liver, and many other diseases are permitted to drag out their existence without relief. There are several reasons for this. Sometimes families, having been told the truth about such a patient, refuse all further medical aid, even when the conscientious physician who gives the information points out what can still be done.

Many physicians voluntarily discontinue attendance when they realize that the end is inevitable, with the feeling, doubtless, expressed by Sir William Temple. The latter said that "an honest physician is excused for leaving his patient when he finds the disease growing desperate, and can, by his attendance, expect only to receive his fees, without any hopes or appearance of deserving them." This, however, ignores the fact that in such cases the accomplished physician can often do more real good to the patient than in many cases that recover, while the opportunities for obviating despair, alleviating pain and soothing mental anguish, and for exhibiting thoughtfulness, gentleness, persistence and variety of resources, are more valuable to the physician than any fee. Even in acute cases it sometimes happens that the physician is either discharged or withdraws because the indications seem hopeless, and I have known of patients with pneumonia living for one or two days in this way, the family waiting for the end of a life that with greater effort might have been saved. Sir Francis Bacon described this tendency as one of the deficiencies of medicine, "so that Sylla and the triumvirs never proscribed so many men to die as physicians do." For, as he continued, "the office of a physician is not only to restore health, but to mitigate pain, and not only when such mitigation may conduce to recovery, but when it may serve to make a fair and easy passage."

Improvement in methods of treatment have an important relation to prognosis, in that many diseases, considered hopeless at one stage of knowledge, may in another offer many chances for recovery or alleviation. In this connection a critical knowledge of current medical literature is necessary, and a realization of the value of medical evidence. Few things can be more disastrous to the physician's mental development — never completed — than constant change of therapeutic method, but there are differences. One need not try every drug proposed for the treatment of typhoid fever or pneu-

[6] Duckworth, Sir Dyce: Address on Medicine, British Medical Journal, 1896, ii, p. 251.

monia, nor every new antipyretic or hypnotic. But the physician who does not inform himself quickly of the value of surgical treatment in various diseases as it is developed, in pelvic diseases, brain diseases, diseases of the appendix, biliary tract, stomach and pancreas, comes very near deserving the reputation of an unscrupulous practitioner. In these departments, too, mistakes are made and exaggerations are inevitable concomitants of progress, but the gain is often distinct and unmistakable, and often changes the prognosis from one extreme to the other.

It may seem that I have taken a too purely medical view of the practice of prognosis. Can we always act from the standpoint of simple diagnosis and prognosis, or must we not at times take into consideration the weakness, fears and prejudices of people? In trying to get the best light on this subject I have for many years noticed the opinions of patients and their relatives, as well as of non-medical writers, and it is instructive to learn how those who are not physicians approach the subject. Many physicians have been influenced by the views of Percival, from whose interesting work on Medical Ethics some of the best parts of the old Code of the Association were taken. Percival said:[7]

> A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely warning of danger, when it really occurs, and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming, when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy, for the physician should be the hope and comfort to the sick; that by such cordials to the drooping spirit he may smooth the bed of death, revive expiring life and counteract the depressing influence of those maladies which rob the philosopher of fortitude and the Christian of consolation.

In general, this furnishes a useful guide to conduct, but nevertheless requires some examination. Part of it reminds one of the maxim of John Halle, who as far back as 1596 wrote:

> With one consent uniformlye
> Comfort the wounded man,
> But unto some good friend of hys
> Express all that you can.

In the first place, the truth is not always so alarming to the patient, painful as it often is to the physician. In fact, it seems to me this is one part of our duties that does not become less trying with increasing experience. To the sick man, whose thoughts have been turned toward the end longer than others suspect, intimation of a fatal end often brings no shock, but rather relief from the ending of a painful uncertainty. According to the rules of the Roman Catholic Church, a timely announcement should always be given, and those who have witnessed the last days of members of this faith can confirm the statement that good often follows, speaking merely from the medical standpoint, and rarely harm, while the same thing is true of many of other faiths or of no faith. Even where we have to give a fatal prognosis there are certain mollifying influences that can be introduced, aside from those that spring from a tender heart. A hope can be expressed based on the fallibility of human knowledge in general and medical knowledge in particular.

The rule in regard to giving the patient a good prognosis and the relatives a bad one, can often be followed, but is a very fallacious one on the whole. It is often more necessary to keep up the spirits of the relatives, especially those who have to nurse, than those of the patient, so that sometimes the rule can be reversed with advantage. Darwin[8] cites some interesting and instructive examples of this kind, from his father's practice, and Billroth[9] has expressed himself with much feeling in one of his letters. Moreover, the relatives informed, either from a feeling of compassion or otherwise, may not bring the patient to act on the information, and I have known of serious financial loss befalling a family because the relative entrusted with the task of breaking the news to the patient did not do this. Another risk is that the relatives may divulge the fatal prognosis in such a way as to put the physician in the light of a heartless deceiver, and thereby cause the patient to lose all confidence in him. On the whole, in cases where the patient should know the truth the physician is often the best one to state it, and he should see that this is done before it is too late.

Exceptions to the rule of candor may occur in the case of children, in women with no spiritual obligations or business responsibility, or in

[7] Medical Ethics: or a Code of Institutes and Precepts, adapted to the professional conduct of physicians and surgeons, with an appendix containing a discourse on hospital duties: also notes and illustrations, by Thomas Percival, M.D., Manchester, 1803, p. 31.

[8] The Life and Letters of Charles Darwin, edited by his son, Francis Darwin, New York, 1887, vol. i: "Called in to see a patient who had been given up to die by the family physician, Dr. Darwin took a different view of the matter and maintained that the man would recover. He was found quite wrong in all respects, and owned his error. He was convinced that he should never again be consulted by this family, and was much surprised at being called in after a few months by the widow. He asked a friend of the widow to find out why he was again consulted. The widow answered that she would never again see the odious old doctor who said from the first that her husband would die, while Dr. Darwin always maintained he would recover. In another case Dr. Darwin told a lady that her sick husband would certainly die. Some months afterward he saw the widow, who was a very sensible woman, and she said, 'You are a very young man, and allow me to advise you always to give, as long as you possibly can, hope to any near relative nursing a patient. You made me despair, and from that moment I lost strength.' 'My father,' continued Darwin, 'said that he had often since seen the paramount importance for the sake of the patient of keeping up the hope, and with it the strength, of the nurse in charge.'"

[9] Briefe von Theodor Billroth, 1902: Speaking of the slow decline of Professor Breisky, and of the attending physician telling the whole truth to the wife, he remarked: "I admit that under certain circumstances this is necessary: but here I do not think it is necessary. How can the poor wife, without a glimmer of hope, bear the weeks until the Liberator of all sorrows gently approaches the husband. We should give her courage, and the poor patient morphine. A hard task. But let us remember that every family physician is in this situation hundreds of times, and often has to see his incurable patients daily. If the young man suspected these mental tortures when he enthusiastically enters the temple of Æsculapius he would surely often turn back. To face the unveiled figure of Sais requires all the undaunted resignation that we slowly win in our profession."

exceptional cases in men. No general rule can be laid down, but that such exceptions occur can be confirmed probably by every physician. A striking example of this is quoted by Darwin.[10]

Of course, this part of the subject is closely related to the theory of ethics, and many writers on this subject have touched directly on the question of medical veracity with, as one might anticipate, diametric differences of opinion. Some moralists of the strict school of Kant and Fichte insist that any deviation from the absolute truth is wrong in medicine, as they assert that it would be wrong even for the purpose of saving the whole race. Others believe with Paulssen, who says: "There is not a physician in the world who does not give deceptive answers to his patients, who does not excite hopes that he does not share. He does not blame himself, nor do others, for everyone does the same." Johnson, "the stern old moralist," in his remarks on the subject, laid open a serious flaw in his own logic: "You have no business with consequences, you are to tell the truth." But surely the physician's chief interest is with the consequences, and if he thinks the patient can gain only by misrepresentation, it is just as proper for him to use it as it would be to give a medicine that in other cases might be quite improper. But the physician in such a dilemma would do well to bear in mind the next sentence in Johnson's *ipse dixit:* "You are not sure what effect your telling him that he is in danger may have. It may bring his distemper to a crisis, and that may cure him." Jonathan Dymond, as strict as any one in his morality, threw a gleam of stern humor into the discussion: "Persons frequently employ falsehoods to the sick man who cannot recover, lest it should discompose his mind. This is called kindness, though an earnest preparation for death may be at stake on their speaking the truth. There is a peculiar inconsistence sometimes exhibited on such occasions. The persons who will not discompose a sick man for his interest in futurity, will discompose him without scruple if he has not made his will."

This part of the discussion might be indefinitely prolonged, but I think we can never get far away from the principle I intimated in the beginning — that in practical prognosis we must individualize, just as we have to in therapeutics, with the patient's welfare ever the object of our activity.

Accidents that follow an unfavorable prognosis occasionally suggest a revision of methods. I have already alluded to the error formerly not uncommon in the treatment of tuberculous patients. More acute results sometimes follow a fatal prognosis, as in two of my patients who resorted to suicide. One was a man with far-advanced carcinoma of the stomach, to whom I recommended palliative treatment and advised against a useless effort at radical treatment. The patient left for his home, but threw himself from a fast train and was killed. In another patient, a man with a large kidney tumor, apparently with many adhesions, my surgical colleague and I advised against an operation. The patient went to another hospital, and apparently received similar advice, for he shot himself through the tumor, and died in a short time. From a broad biologic standpoint it does not, of course, make any difference whether an individual organism dies as either one of these, or as it would if left to its fate. But no matter how one may feel on the subject of suicide, I have always thought these men less fortunate than another patient with carcinoma of the stomach, also far advanced. To him, in advising against an operation, I added that if he could find a good surgeon who was willing to operate, he might submit. He underwent the operation at the hands of one of the most distinguished surgeons in the country, and died on the table. In such a case the result is often unfortunate, because it prevents operations on other and more promising cases, but for the man himself, fighting to the last, it seems to me one can have only respect.

This brings up a question on which a few words may be proper — the question of euthanasia. Every few months some one — usually not a physician — proposes that people with incurable diseases should be killed by some painless method. The plan offers so many opportunities for crime that it would be difficult to carry out, but aside from that it involves important principles. The difficulty of telling when the proper time had come would often be insuperable. Aside from examples of fortitude and other virtues exhibited by the dying, how much the world would have lost if a chronic invalid like Stevenson had the cord of his life snapped at one of the times when the *aes triplex* of his soul seemed battered through! To take a less selfish view, we can think of the "pictures of human patience, the visions of ripened character, which have been revelations and inspirations to generations of mankind" (Phillips Brooks), and see these repeated daily in sick rooms of all degrees, while the self-sacrifice and kindness developed in others at such times cannot but be of untold benefit to the race. To most physicians the suggestion of any planned shortening of life must be abhorrent. For countless generations they have been doing their utmost to lengthen life and lessen disease. They have shown how to prevent the plagues that formerly made life almost as bad as a perpetual illness for the survivors, and they have also shown how many deaths can still be prevented. On the other hand, they can, in most cases, so treat the dying man that the bitter anguish often associated with death is absent, that life is not only less painful but, actually longer, so that they will continue to follow the rule of the Father of Medicine, and "give no deadly medicine to any one, even if asked, nor suggest any such counsel."

[10] *Op. Cit.* "He was sent for by Mr. P., who said, 'From all that I have seen and heard of you I believe that you are the sort of man who will speak the truth, and if I ask you will tell me when I am dying. Now I much desire that you should attend me, if you will promise, whatever I may say, always to declare that I am not going to die.'"

Original Articles.

CARCINOMA BASOCELLULARE.

A Group of Superficial Gland-like Tumors of the Skin, of Relatively Slight Malignancy, Including Rodent Ulcer.

BY S. C. EMLEY, M.D.

From the Pathological Laboratory of Rush Medical College, Chicago.

Krompecher [1] has called attention to a peculiar superficial tumor of the skin, which he places in a class by itself because it is neither typical carcinoma nor typical adenoma. Clinically they appear as fungoid tumors or as ulcers occurring most frequently in the skin of the face or of the female breast. They may occur on other parts of the body, but never at the junction of mucous and epidermal surfaces. Histologically they originate from the Malpighian basal layer or its embriologic equivalents. These tumors have been observed and described by several authors, but Krompecher was the first to give a full description and recognize their peculiarities. Since the appearance of Krompecher's article, I have examined thirty-seven tumors of this variety occurring in thirty-five cases. The tissues were fixed in alcohol, formalin, solutions of mercury and Zenker's fluid and stained with various reagents. They were infiltrated with either paraffin or celloidin, and studied in serial sections in all cases except one in which only two sections of the tumor were obtained.

Because of the great similarity of these cases clinically, the chief features pertaining to their clinical course are summarized in the following table:

[1] Ziegler's Beitrage, 1900, xxxviii, 1.

CLINICAL NOTES.

Case I. The tumor became painful a year before the operation, and during the last three months was growing; at the time of the operation the surface was nodular, shining, elevated .5 cm. above the skin level and extending .5 cm. below, and caustic.

Case II. A slightly elevated tumor, having an ulcerated center and a slight depression around it.

Case III. Began as a papule, and after first removal by caustic three years ago grew more rapidly; was excised one year ago when it appeared as a fungoid ulcer 2 mm. above the skin level, having irregular raised edges.

Case IV. Began as a small nodule, which ulcerated and was removed after a few months. At the time of removal there was an ulcer with moist, crusted, raised floor and irregular, indurated edges.

Case V. A flat ulcer with irregular, indifferent edges and moist floor.

Case VI. Began as a papule, which ulcerated and grew slowly, involving the nose and cheek to the outer side; the base was seropurulent.

Case VII. Began as a pin-head-sized papule, which ulcerated and was twice removed. It now has a moist, grayish floor with raised indurated edges.

Case VIII. Began as a small "sore" and grew slowly till the present time, now being an irregular ulcer with raised and telangectatic edges.

Case IX. Began as a small papule, which soon ulcerated, then slowly extended over the surface. The floor is now covered with a thin, shiny epidermis, broken in many places, forming small ulcers. The border is nodular, infiltrated and 2 mm. thick.

Case X. The tumor had existed as a red spot for ten years; six months ago it began to grow. The tumor is firm, movable, superficial, elevated ½ cm. above skin level and has no line of demarcation. The summit is depressed and ulcerated, the surface being fungoid in appearance.

Case XI. Began as a small papule, which soon

NO.	AGE.	SEX.	OCCUPATION.	DURATION OF TUMOR.	RECURRENCES.	SIZE CM.	LOCATION.	CLINICAL DIAGNOSIS.
1	43	F	Housewife	Many years		1 x ¾	Left side of the nose	Epithelioma
2	47	F	Housewife	Many years		1 x 1	Right ala of the nose	Tuberculous ulcer; fibrosarcoma
3	51	M	Iron moulder	4 years	2	1 x 1.5	Left ala of the nose	Nasal tumor
4	55	M	Farmer	12 years	Several	3 x 3	Right forehead	Epithelioma
5	34	F		5 years		3 x 3	Bridge of the nose	Carcinoma
6	65	M	Laborer	5 years		4 x 3	Lower eyelid	?
7	64	M	Miner	11 years	3	1 x 1.5	Over malar bone	Epithelioma
8	36	M	Iron moulder	6 years		2 x 2	Right cheek	
9	38	M		Many years	3	2.5 x 3	Outer right canthus	Carcinoma
10	66	M	Farmer	10 years		1 x ¾	Malar region	Epithelioma
11	73	M	Farmer	6 years	No	¾ x ¾	Outer right canthus	Carcinoma
				2 years	1	4 x 4	Outer left canthus	
12	34	M		11 years		2 x 2.5	Lower eyelid	Carcinoma of the eye
13	55	M	Painter	3 years	1	3 x 4	Lower eyelid	Epithelioma
14	78	F		20 years		¾ x ¾	Side of the nose	Epithelioma; adenocarcinoma
15	38	M	Laborer	2 years		2 x 2	Right eyelid	Adenocarcinoma
16	19	M	Electrician	10 years	2	2 x 2	Right ala	Epithelioma; lupus, carcinoma and adenocarcinoma
17	60	M	Farmer	Several yrs.		2 x 2	Right lower lid	Epithelioma
18	74	M	None	10 years		1 x 2	Left ear	?
19	51	F	Housework	12 years		1.5 x 1.5	Right malar region	?
20	71	M	Laborer	2 months		1 x 1	Right lower lid	Epithelioma
21	43	M	Cornetist	13 years		3 x 3	Upper lip and cheek	Lupus, endothelioma
22	22	F	None	21 years	No	1.5 x 1.5	Right ala	Adenocarcinoma
				2 years		2 x 3	Right cheek near angle of mouth	Adenocarcinoma
23	46	M		3 years	No	1 x 1	Right upper lip	Epithelioma
24	43	F	Housewife	12 years	No	3.5 x 3	Left temple	Melanotic sarcoma
25	68	M	Farmer	15 years	No	¾ x ¾	Left malar region	Epithelioma
26	62	M	Foreman	1½ years	No	2 x 2	Tip of left ear	Epithelioma
27	40	M		3 years	No	1 x 1	Cheek below right eye	Epithelioma
28	39	M	Cabinet maker	1 year	No	3 x 4	Left cheek	Ulcer
29	69	M	Farmer	40 years	No	2 x .5	Right lower lid	Adenocarcinoma
30	43	F	Housewife	19 years	No	1 x 1	Right cheek	Wart
				6 years	No	2 x 2	Left malar region	Atheroma
31	68	F	Housewife	4 years	No	1 x 1	Right forehead	Epithelioma
32	54	M	Carpenter	5 years	No	1.5 x 2	Left parotid region	Carcinoma of parotid
33	54	F		6 years		1 x 1	Left cheek	Carcinoma
34	53	F	Housewife	3 years		3 x 3	Left eyelid	Rodent ulcer
35	52	M	Civil engineer	38 years	2		Left malar region	Epithelioma

For Case 8 I am indebted to Dr. Hugh E. Montgomery, and for cases 6, 9, 11, 12, 13, 33 and 34 to Dr. E. V. Brown.

ulcerated; when it reached the size of a nickel it was removed by a plaster.

Began as a small papule and soon ulcerated; it grew until now there is an ulcerated, cauliflower-like mass filling the orbit.

CASE XII. Beginning as a dark papule, which remained stationary for several years; it suddenly began to grow, and in six years from its appearance it had involved the entire orbital contents, producing an ulcerating fungoid mass.

CASE XIII. A small pimple was first noticed; this ulcerated and was cauterized two years after. At the time of operation there was present an ulcer with moist, scaly floor and indurated, raised borders, involving both eyelids and the outer canthus.

CASE XIV. Began as a small pimple and grew till time of operation; it never ulcerated nor caused pain.

CASE XV. Began as a small pimple and grew steadily. At the time of operation it appeared as a flat tumor with pebbly surface, ulcerated in small areas and in part covered with a thin, shining, bluish skin.

CASE XVI. Began as a small tender area, which was removed while no larger than a grain of corn. At the time of operation there was a bleeding and sloughing ulcer 1 cm. deep, the edges being hard and red.

CASE XVII. A small growth was present on the eyelid for several years; it then ulcerated and gradually grew in size.

CASE XVIII. A pimple was noticed in the external meatus, which broke down, forming a shallow, painless and slowly growing ulcer.

CASE XIX. At the time of operation there was a slightly nodular tumor, painless and with a small ulcer at its summit; the cut surface was caustic.

CASE XX. A slight swelling first appeared, which in two weeks broke down and would not heal. At the time of the operation the floor of the ulcer was covered with a serous exudate; the edges were raised and indurated. The lesion was painless. The cut surface was striated.

CASE XXI. There was a slowly growing, painless tumor for twelve years. Nine months ago the lip was struck, and the abrasion produced over the tumor refused to heal. At the time of the operation there was an ulcerating, papillomatous tumor.

CASE XXII. Began as a small pigmentation, painless and slowly growing. The surface was rough and covered with comedones. It was raised 1 mm. above the skin and freely movable with it.

First noticed as a small ulcer, which grew slowly and was attended by itching. The surface was depressed and granular; the edges were indifferent.

CASE XXIII. Began as a small, bluish pimple attended with pricking sensations. A year ago it was punctured and healed over. At the time of operation it was an elevated nodule, rough and telangectatic. The cut surface was cystic.

CASE XXIV. First noticed as a pin-head-sized, painless papule, bleeding easily when irritated. At the time of operation it was a flat nodular tumor elevated ½ cm., the surface covered with rough, pebbly growths, hair and dirty sebaceous material. The overlying skin was thin, shiny and tender.

CASE XXV. Began as a shot-like papule, which grew slowly for years. During the last six months it has ulcerated with a sticky secretion. At the time of operation there was a small, elevated, painless nodule, freely movable and ulcerated at the summit.

CASE XXVI. Scratched the ear on the limb of a tree. The wound healed but remained tender. Three months ago it broke down, forming a crater-like ulcer.

CASE XXVII. Began as a pimple, which grew slowly. Three months ago it became an ulcer with moist, granular floor and raised indurated edges.

CASE XXVIII. Began as a pimple, which, after being repeatedly shaved off, formed a shallow, bleeding ulcer, slowly increasing in size.

CASE XXIX. A small swelling had been present for twenty-four years, then it began to grow slowly. Sixteen years later it ulcerated, forming crusts, but was never painful. At the time of removal there was a clean, ulcerating surface along the margin of the lower lid, which was slightly indurated, the edges being irregular, but neither undermined nor elevated.

CASE XXX. Had existed for many years as a papillomatous growth without pain and with only slight increase in size.

Was first noticed as a hard nodule, which slowly increased in size without ulceration or pain. At the time of removal it was subcutaneous and movable with the skin, the summit soft and the base hard. The cut surface was caustic and calcareous.

CASE XXXI. First noticed as a small sore which would heal at times. It was never painful, but a week before removal presented prickling sensations. At the time of removal there was a thin, flat growth with an ulcer in the center, having an irregular, indifferent edge and a scale-covered floor. It was freely movable.

CASE XXXII. Three years ago two warts on the left cheek began to grow, soon ulcerated, and coalesced two years ago. They were slightly painful. At the time of removal there was an elevated, fungoid ulcer with a purulent floor and indurated telangectatic edges.

CASE XXXIII. Began as a small raised point which grew slowly and ulcerated later. The ulcer was shallow and moist with indifferent, irregular edges.

CASE XXXIV. Began as a small "sore" on the lower lid, finally involving both lids, the eyebrow and a portion of the cheek. The ulcer was grayish, purulent, fungoid mass with irregular raised edges.

CASE XXXV. Began as a small, painless, scaly wart and grew slowly for years, healing and ulcerating alternately. Six months ago it was treated with an electric needle, and a month ago with paste, which aggravated the condition. It is now an ulcer, ½ cm. deep, with a clean granular floor and irregular, slightly indurated, elevated edges.

As may be seen by a study of this table, some very interesting facts, associated with the clinical histories of these cases, are made apparent. Surgical intervention was sought, as a rule, only after the tumors had existed for a number of years; this is directly attributable to their seeming insignificance. The duration of the growths, which was obtained in all but four cases, varied from forty years to two months and averaged over eight years. The average age of the patients was fifty-one years. Recurrence was observed in eight cases, and in a few the time is so short since removal that no statement concerning the tumor would be of value. Where careful search for the involvement of the lymphatic glands was made, it was invariably wanting. The tumors are all small, and in all cases were located on the upper two thirds of the face. In four cases there were two tumors at the same time; in Case XXII the elevated tumor on the right ala had existed for a number of years before the ulcerated, depressed tumor, 1 cm. above and external to the angle of the mouth, developed. The structure of the growths in this case is somewhat differ-

ent, although they both belong to the class under consideration. In Case XXX the tumors were on opposite sides of the face, and in Case XXXII there were at first two separate growths, which later coalesced. In Case II, four years after the removal of the first tumor from the lower lid of the right eye, one correspondingly located appeared on the other side. Other observers have also noted their occurrence as multiple growths (Fordyce, Bowen, Brooke).

Krompecher distinguished six forms of these tumors according to whether they grow as anastomosing papillæ and cords, sheet-like folds, invaginations from the surface, styloid accumulations of cells or cylindrical-celled tubules, or as combinations of these. It has seemed to me, from my study, that insufficient notice has been given by Krompecher to the fact that most of the tumors of this variety are made up of rounded aggregations of cells possessing an elongated neck-like connection. The tumors showing a preponderance of such flask-like masses of cells, and most of the thirty-seven tumors studied do, I shall designate as "bulbous"; those which are not characterized by such formations correspond to the "cystic" or "styloid" varieties of Krompecher. The majority of the tumors are mixtures of these, although the styloid form is found sometimes quite pure.

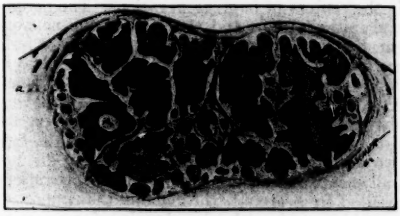


FIG. I. — The Bulbous variety, from Case XIV. The form taken by the groups of cells is well shown.
a. — Degenerative changes.

The Bulbous Form. — As an example of the bulbous form of superficial adenocarcinoma, the tumor in Case XIV will serve. The growth (Fig. 1) is entirely encapsulated with connective tissue; and the overlying epithelium, where present, is reduced to a few layers of flattened cells; the sudoriparous and sebaceous glands at the periphery, outside the capsule, show no changes except those of compression and displacement. The tumor cells are elliptical and small with very few mitotic figures. The stroma consists of a few narrow bands of mature fibrous tissue carrying blood vessels. Between these are solid masses of tumor cells, those at the periphery being perpendicular to the stroma. In a few places (*a*, Fig. 1) the cells have undergone degenerative changes and necrosis, and are represented by granular material and fragmented nuclei. In this variety the aggregations of tumor cells, as seen in serial sections, possess a rounded form with narrow, slender bridges uniting them to other collections.

Careful study of serial sections has demonstrated that these growths originate from more than one point of proliferation. Grouped islands of tumor cells, which appear separately in single sections, when studied in series, are found to be connected, each island directly or indirectly, with every other island of its group, all having a common point of origin. In most of these tumors, however, there is more than one point from which tumor cells arise, and the connected masses of tumor cells from one origin are separate from those of a different origin. Thus, in studying one half of a tumor from center to periphery, seven separate masses of tumor cells were found.



FIG. II. — The Cystic form, from Case I. The cyst-like cavities are formed by alterations in the stroma, chiefly due to circulatory disturbances.
a. — Swollen and degenerated (edematous?) connective tissue.
b. — Narrow parallel rows of tumor cells.

The "Cystic" Form. — In single sections from many of the growths the appearances are entirely different from those described for Case XIV, on account of the predominance of cavities instead of bulbous aggregations of tumor cells. When a freshly removed growth of this character is examined, the cavities are sometimes found to contain a turbid, slightly opalescent, thin gray fluid. The methods of fixation have evidently not preserved this fluid, for, as a rule, empty cyst-like spaces are found when these tumors are examined microscopically. One of the largest of these spaces measures 5 mm. across, but generally they are much smaller. These cavities usually possess a thin wall of epithelial cells; in some the lining is in part formed by swollen and degenerated connective tissue (*a*, Fig. II). The facts that the innermost row of epithelium lining these cavities is columnar, that many of them contain blood and some remnants of connective tissue, point to an origin through an interference with the circulation in the vessels of the stroma. Sometimes, in the study of serial sections, a mass of connective tissue is found almost surrounded by tumor cells and connected with the rest of

the stroma only by a narrow, compressed strand. The cavities are not always, therefore, as casual examination would indicate, spaces within the tumor cell masses, but, instead, are located in the stroma, which has entirely disappeared from many of them.

There may be found in both the bulbous and so-called "cystic" varieties collections of degenerated tumor cells, which simulate the above described cavities due to edema and other circulatory disturbances of the stroma. Even cursory examination demonstrates the difference between these. The cavities inside the tumor cell masses caused by degenerative processes always contain necrotic cells their lining, instead of being columnar cells, shows only a gradual transition of granular débris in the center to the well-preserved tumor cells; there is no sharp line of demarcation between the central cavity and the unchanged tumor cells. True retention cysts are also occasionally met with, formed from portions of sebaceous glands or their ducts, which have been enclosed by the growing tumor. In these the lines of demarcation between tumor cells and the enclosed mass of necrotic sebaceous cells and sebaceous material is distinct and sharp.

Another characteristic of the "cystic" form is the occurrence, as seen in single sections, of narrow, parallel rows of tumor cells (*b*. Fig. II), which may be at right angles, obliquely placed, or even parallel to the surface. They are very long in many sections, in one instance measuring 1 mm. Study of serial sections shows that these are sheets of epithelial cells and not cylinders, and that they anastomose. They are usually parallel at their beginning, but growing downward their direction becomes tortuous, and at their deepest parts they are greatly folded and compressed and not infrequently end as compact masses of cells, resembling the formations characterizing the bulbous variety.



FIG. III. — The Styloid form, from Case III. The compression of the tumor cells into aggregations with pointed processes characterizes this form. They are easily mistaken for fibro- and spindle-celled sarcoma.

The Styloid Form. — In eight cases (Cases III, V, IX, XVI, XVII, XXVIII, XXXIV, and one of the growths in Case XXII), the microscopical structure failed to answer to either of the forms described, and in two of these, in which the entire tumor was studied, nearly all the sections presented the following appearances (Fig. III, Case 3). In these cases a limiting capsule sharply demarking tumor cells from normal tissue, such as occurs in the bulbous and "cystic" varieties, is not found; in addition, the stroma is much more abundant and there are many evidences of an inflammatory process, such as infiltration of round cells, newly formed blood vessels and other appearances of cicatrizing granulation tissue. The tumor cells, instead of being aggregated into round masses, as in the first form, or enclosing cavities, as in the second, are grouped into irregular anastomosing and branching bands and styloid processes. The processes are very different from the sections of sheets of epithelial cells appearing as cords in single sections previously described, in that great variations in width occur in relatively short distances, and the cells are rarely perpendicular to the stroma. In these bands two epithelial cells may represent the width at one point, and on either side the band may suddenly widen to many cells or be reduced to a narrow thread of cells. Tumor cells with round and vesicular nuclei are found only in the centers of large aggregations. The peripheral epithelial cells and the cells of the network constituting the conspicuous feature of this form are spindle-shaped, and where they terminate in delicate processes are with difficulty differentiated from the nuclei of the stroma. It is very obvious that the inflammatory reaction on the part of the surrounding tissue, which in the first two varieties is represented by a fairly distinct wall encapsulating the tumor, has in this variety resulted in a growth throughout the tumor of branching and coalescing bands of connective tissue. The resulting compression of the epithelial cells and the consequent alteration in their shape explain why some growths of this form have been wrongly diagnosed as fibro- or spindle-celled sarcoma and as endothelioma.

It will be seen from the table that erosion occurred early in these eight cases when compared to the long duration of the growth. It is reasonable to suppose that the escape of the inflammatory exudate, the products of necrosis and degeneration as well as the serum and the formed elements of the blood accumulating in consequence of local disturbances of the circulation, interfered with the development of cysts. To what extent the penetration of the tumor by the surrounding granulation tissue was facilitated by the ulceration would be difficult to state. Absence of the protecting epithelium certainly afforded more exposure to irritants which promote the inflammatory process.

It was found by studying serial sections that preservation of one or the other of the types described did not prevail throughout the entire growth. Twelve of the tumors were almost

entirely of the bulbous form, seven of the cystic and six of the styloid. The remainder presented such admixtures that classification as distinct forms was not possible. The most frequent association obtained in growths showing both bulbous and "cystic" forms, the bulbous predominating. Cavities were never observed in the styloid form.

Excellent opportunity for examining the relationship between the tumor cells and the superficial epithelium was afforded by the study of entire growths in serial sections. In all but three cases the tumor cells were distinctly continuous with the Malpighian layer. In Case VIII the tumor arose from the neck of a sebaceous gland, and in Case XIII from a hair follicle; in the third case the relationship could not be determined because of the method of removal. In seven cases direct connection between tumor cells and sebaceous glands was also demonstrated, and in five with the outer layer of hair follicles. In twenty-three cases the epithelium appeared to give origin to tumor masses at more than one point.

However varied the origin, as shown by its connection with pre-existing and normal epithelium, the tumor cells invariably resemble the basal cells of the Malpighian layer with a single difference: they never contain pigment. The marked benignancy of these growths and the absence of pigment in the cells are in striking contrast to the great malignancy of the pigmented tumors which Abesser,[2] Larass,[3] Schalek [4] and others have recently insisted develop from the epithelium and are therefore carcinomas, instead of sarcomas as has been heretofore supposed.

The similarity of the tumor cells to the Malpighian layer is especially shown in the peripheral cells of the bulbous masses and in the thin partitions of "cysts." Slight modifications in shape and staining reaction are met with in the centers of the large aggregations of cells, but they are never sufficient to correspond to the alterations that occur in the successive layers of normal epithelium. Reference has been made to the marked alterations in the styloid form from compression.

The relatively few dividing nuclei always represent regular and typical phases. In Case V careful search failed to show any karyokinesis. The blood vessels are found in the stroma, which is scanty in the bulbous and "cystic" varieties and more abundant in the styloid form. Plasma cells and lymphocytes occur in the stroma in varying amounts. In the well-marked zone of granulation tissue around the cystic and bulbous forms they occur in numerous foci; mast cells are found scattered diffusely throughout most of the growths. In the styloid the stroma is more cellular than in the other forms. In the pars papillaris at the periphery of many of the growths the large amount of elastic tissue (Wiegert's stain) is too great to be accounted for from mechanical disturbances. This fibrous element is rarely found among the tumor cells.

There are good reasons for believing that diseases of the sebaceous glands are in some way related to the development of these tumors. The great size of these glands in the adjacent skin in many instances, the connections between tumor cells and sebaceous glands and their ducts, the origin in one case from a duct, and the occurrence of two separate growths on either side of the face in Case XXII, in which there was a well-marked acne vulgaris of several years' duration, are some of the reasons which support this view. Other investigators have observed this association. Great variations occur in the direction of the hair follicles and gland ducts at the margins of the growths; these structures are rarely found within the confines of the tumors and never in the styloid form. The superficial character of this last-named variety is shown by the invariable presence of sudoriparous glands below the tumor.

In a number of the tumors the so-called hyaline degeneration was present, chiefly as a terminal phase of the organization of granulation tissue. In a few instances mucoid degeneration was observed, and in Case XXX the growth on the left side of the face was extensively calcified. Hemosiderin was frequently found in all parts of the growths.

The tumors examined in eight cases were recurrent growths, and in one instance the primary tumor was also examined. Since recurrence may be considered as one step nearer malignancy, and these secondary growths are intermediate between those already described and the familiar carcinoma originating in stratified squamous epithelium, they were examined with special interest. The most important differences revealed by their study are the greater number of dividing nuclei, the disposition of the epithelium to form "pearls," a more marked inflammatory reaction and the lessened formation of a compact encapsulating zone of granulation tissue.

That tumors of this class are not as harmless as might be inferred from their small size and long duration and that great care should be exercised in their removal is evident from the history of Case XXXIV. The woman first noticed a papule where the bridge of her eyeglasses irritated the nose. This increased in size slowly, was diagnosed eczema and treated with x-rays. Under this treatment it almost disappeared. Growth began again four weeks after its discontinuance and various local applications were made. At the end of two years after it was first noticed, the ulcer involved most of the nose; the edges were irregular, indurated and slightly elevated, and it was removed with a cautery knife, the line of incision being close to the edge of the ulcer for fear of injury to the eyes. The tissue removed was studied in serial sections and the structure of the ulcer at the edge corresponded with that described for the bulbous form. There was then some treatment with the x-rays, another operation at the end of six months, recurrence in less than another month with involvement of the

[2] Virchow's Archiv., 1902, clxvi, 40–60.
[3] Arbeit. aus d. Path.-Anat. Abth. der Kon-Hyg. Inst. zu Posen, 1901, 66–96.
[4] Journ. of Cutan. and Gen.-Urin. Dis., 1900, xviii, 145–153.

upper lip, the eyelids, forehead and cheeks and destruction of the soft tissues of the nose. The structure of the growth at that time was ordinary carcinoma of the squamous cell type, and the case was considered inoperable. The above account illustrates the truth of the statement by Fordyce [5] that these tumors are better left alone than carelessly treated. The histories of the other recurrent cases show that the temporizing treatment with local applications, no doubt the result of fear by operators of leaving unsightly scars, has been followed by recurrence and more rapid growth.

Two facts acquired considerable emphasis from a careful review of the literature pertaining to tumors presumably of this variety. The first of these concerns the long list of names which they have received, so numerous that even Krompecher hesitated to add a new one; the second, the almost universal tendency to consider them as closely related to carcinoma. The so-called "Rodent Ulcer" I regard as belonging to the styloid form of this class of tumors, but the term, even as a purely clinical one, is open to many objections. The name suggested by Krompecher, "drüsenartige oberflächenepithelkrebs," certainly carries with it no suggestion of an origin in the glands of the skin, although the development of these tumors from the basal layer of the epithelium, from hair follicles, or from the necks of the sebaceous glands, is definitely established. It has also been shown that the resemblance to glands is only apparent and chiefly due to disturbances of circulation in the stroma. The similarity to tubules, when single sections are examined, may be quite marked, and with much edema of the stroma pseudocysts develop. These tumors are not glandular, but gland-like; they are benign, superficial, and develop from the epithelium.

The usual conception of the development of a carcinoma of the skin includes proliferation of the epithelium and invasion of the deeper tissue. Both of these processes occur in the histogenesis of these tumors, and yet the majority of the clinical characteristics of carcinoma are certainly absent. Not even the loss of the protecting epithelium and ensuing irritation, ulceration, etc., are alone sufficient to effect their transformation into the familiar forms of cutaneous carcinoma. As before stated, in connection with recurrent cases, the evolution to carcinoma often takes place as a result of methods of treatment largely due, no doubt, to their location upon the face.

THE RELATION OF THE BURN TO THE BULLET HOLE AS EVIDENCE OF HOMICIDE vs. SUICIDE: REPORT OF THE NAGLE CASE.[1]

BY JAY PERKINS, M.D., PROVIDENCE, R. I.

ON the morning of the 14th of November, 1901, the body of James Nagle was found lying on his bed at his home in East Providence, R. I., with a bullet wound in the right side of the head, 1¼ inches above and a little anterior to the junction of the ear with the head. Singeing of the hair extended 1½ inches above the bullet wound, a little back of the ear and a little below the angle of the mouth, the beard being about a week's growth. The body was lying in a natural position on the bed, the arms at the sides, with a 32-calibre revolver between the right hand and the thigh. The tenement occupied by James Nagle and his wife, Rose, both French Canadians, was in a basement and consisted of a kitchen and sleeping room. Back of the house was a wood shed. Mrs. Nagle claimed that James came home the preceding night a little after eleven o'clock, drunk (Mr. and Mrs. Nagle were both frequently drunk and quarrelsome), and drove her out of the house. She was afraid to re-enter the house and spent most of the night in the wood shed, going to a window of their bedroom at intervals and looking in at her husband. At about four o'clock in the morning, hearing no noise and thinking he was asleep, she entered the house, but he was by the stove and drove her out with the poker. After hearing the five o'clock whistle, she again started to enter the house, and looking through the window of the sleeping room saw "some fire or something" and heard "an awful noise." Thinking that he had probably killed their dog she rushed into their bedroom and saw "Jimmy" with his two feet on the floor and his body across the bed. She placed his feet on the bed, laid him straight and pulled the blanket over him. At that time he was alive, but breathing very hard and lived for half an hour. She then went to a neighbor's and asked that he go for a doctor for Jimmy, and upon being asked what had happened to Jimmy she replied, "He is shot, for I heard such a noise."

At a little after five in the morning the Police Sergeant asked Dr. Allison, the medical examiner, to accompany him to Mr. Nagle's house. When they arrived there they found the body in a natural position on the right-hand side of the bed with a bullet wound as described above. At that time Mrs. Nagle stated that her husband had shot himself, and that she had found him lying across the bed with his feet on the floor and holding a revolver in his hand, and that she had placed him in the position in which he was then lying. On the pillow under his head was a blood spot three to five inches in diameter. No blood was found anywhere else on the bed. The fingers were relaxed, and though Mrs. Nagle tried to make them hold the revolver as she said she had found it they would not accommodate her. When asked where Jimmy got the revolver she said that she did not know, but later in the day she stated that he had traded a watch for it.

At this time the case was considered one of suicide, but later in the day it was learned that a woman said to be Mrs. Nagle had, a few days before, purchased at a hardware store in East Providence a revolver corresponding to the one found beside Mr. Nagle. After purchasing the revolver she asked the clerk to load it for her. This he refused to do, but he gave her five cartridges, not noticing whether she had selected a five or six chambered revolver. The revolver found beside Mr. Nagle had six chambers, one chamber being empty, one containing an empty shell and four containing cartridges. At the trial the identification of the woman purchasing the revolver as being Mrs. Nagle was not absolute, in that the one who purchased the revolver wore a thick veil so that the face could not be seen. Otherwise, the two corresponded, a special feature in the identification being the broken English with the French Canadian accent.

Mrs. Nagle was now charged with the murder and arrested and an autopsy was held. The bullet wound

[5] Journ. of Cut. and Gen.-Urin. Dis., 1902, xx, 147.

[1] Read at the Massachusetts Medico-Legal Society Meeting, Feb. 3, 1904.

and burn were as above described. In the autopsy report no mention was made as to powder marks or the character of the wound, but at the trial the medical examiner stated that there were some powder marks. There was a large opening through the skull, and the brain substance and pieces of bone and powder were scattered along the track of the bullet in the brain. The bullet was found lodged "in the cerebellum, just above the medulla oblongata."

Mrs. Lawson, who lived on the floor above the Nagle tenement, testified that as a regular thing "Jimmy came home and made a noise at night and that in the morning Mrs. Nagle made a noise and jawed him." On the night of Mr. Nagle's death she was awakened a number of times and heard quarreling in the tenement below. Most of the time she could distinguish only Mrs. Nagle's voice, and at about three or half-past three in the morning Mrs. Nagle "hollered out" two or three times "I'll kill you." At about quarter past five she heard "a short noise about like a revolver."

I did not see Mr. Nagle's body, but was called into the case by the Attorney-General, who sent me a copy of the autopsy report with a request that I should advise him from a medical standpoint. The report of the wound was very meagre, being only as stated above. I had observed in my work that when burning of the hair or clothing is present the bullet wound is not in the center of the burn, and so, in studying this case, one of the first things I did was to experiment with the revolver found beside Mr. Nagle's body, using the cartridges from the box from which those in the revolver were supposed to have come. I found that there was a uniformity of results, that the major part of the burn always corresponded with the hammer or "sight" side of the revolver. A perusal of medico-legal works at my command failed to show any reference to this with the exception of a small work by Reese. I then wrote to Dr. Draper in reference to these findings, and was pleased to receive an answer from him confirming my investigations and also giving me the reference to a paper read by Dr. Fish before this society and published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Oct. 2, 1884, which treats the subject exhaustively, and shows that unless the revolver is held firmly, as in a vise, there is no exception to the rule as I found it.

At the first trial of this case, I therefore testified that with a bullet wound in the right temple, 1¼ inches above and a little in front of the upper part of the ear, with the hair singed 1½ inches above the wound, some back of the ear, and the beard singed down to the angle of the mouth, the bullet following a direct line to the lower part of the cerebellum just above the medulla oblongata, with fragments of bone and powder scattered along the passage of the bullet through the brain, the revolver was held at a distance of between four and six inches from the head, the barrel pointing in the direction taken by the bullet, with the sight side of the revolver in the direction of the more extensive part of the burn, that is, in front of the right ear, and the trigger side towards the top of the head. The revolver in question being a cheap, Fourth of July variety, and of very hard action, it was improbable that such a wound should have been self-inflicted by anyone, and for myself would have been impossible, while, with the body lying in a natural position on the right side of a low bed, this was precisely such a wound as would be produced by a person standing beside the head of the bed and shooting with the right hand at close range.

At the first trial the defence put in no medical testimony in contradiction of mine. A new trial was, however, obtained on technicalities, and at the second trial your President also appeared as an expert witness for the state and ably upheld the state's claim that the position of the revolver was as stated above, and that the wound was improbably, almost impossibly, suicidal. The defence, at this trial, had two medical witnesses, Dr. William H. Palmer, who had served for eighteen years as medical examiner in Providence and for some years preceding that as coroner, and Dr. Jerome B. Green. Both of these witnesses claimed that there was no such rule as stated above in reference to the relation of the burn and bullet wound, Dr. Palmer characterizing our statements as "fanciful." He stated that his experience and experiments, of which he said he had performed a good many, showed that there was no constant relation between the sight side of the revolver and the extension of the burn. He also stated that nothing could be told in reference to the position in which the revolver was held when the shot was fired, by the direction taken by the bullet through the brain, because of the possible deflection of the bullet. My testimony at the second trial was similar to that at the first, except that on further experimentation I changed the distance from the head at which the revolver was held to between three and six inches instead of four and six, because, with this revolver, it seemed as if I got more marked burning at four inches than at six. All of my work, however, makes me more firmly convinced than at first that in the relation of the burn to the bullet wound we have an accurate guide as to the position in which the revolver was held as regards the sight side of the revolver, this relation being more marked the farther the revolver is held from the object fired at until the point at which the burn fails to appear is reached.

At the second trial Rose Nagle was acquitted. It is the history of murder trials in Rhode Island that usually, when a second trial is obtained, the defendant is acquitted. In this case, the character of the man killed and the pitiful appearance of the defendant probably had as much to do with the acquittal as any lack of evidence on the part of the state.

Even the Attorney-General was moved by the defendant's appearance at the time he made his plea. She was partially blind, of small stature, and sat with her body somewhat doubled over and her feet on a box. In her hand she held a bunch of white pinks with a piece of newspaper wrapped about the stems, looking at them as if trying to derive some comfort from them. After the trial was over the Attorney-General remarked to the

counsel for the defence that he was moved to pity by the forlorn appearance of the defendant, and especially by the way she held the white pinks. An amused smile came over the face of the defendant's counsel, and, on being questioned as to the cause of it, he said that on his way to the court house in the morning he saw those pinks and, thinking that they would look well in the hands of the defendant, he bought a bunch, wrapped a piece of newspaper about the stems, put them in the hand of the defendant and instructed her as to the manner of holding them, which instructions she faithfully carried out.

Clinical Department.

A RÉSUMÉ OF THE RESULTS OF DR. F. B HARRINGTON'S SERVICE, MASSACHUSETTS GENERAL HOSPITAL, FROM JUNE 1 TO OCT. 1, 1902, AS SEEN IN THE FOLLOWING JUNE OR LATER.

BY E. A. CODMAN, M.D., BOSTON.

DISEASE.	Total number.	Number traced.	Perfect result.	Good result.	No improvement.	Bad result.	Died in hospital.	Died after leaving hospital.
APPENDICITIS:								
General peritonitis from	3	3	..	..	..	..	3	..
Acute-wound drained	25	14	5	7	..	..	2	..
Chronic-wound closed	24	13	6	5	2	..	..	..
HERNIA:								
Strangulated	2	2	..	..	..	..	1	1
Inguinal	21	12	4	6	1	..	1	..
Ventral	8	7	4	2	1	..	..	..
Femoral	2	1	..	1	..	..	..	..
MISCELLANEOUS LAPAROTOMIES:								
Fibroid of uterus	6	5	1	3	..	..	1	..
Salpingitis	21	8	..	8	..	..	..	..
Ovarian or brd. lig. cysts	9	7	..	7	..	..	..	..
Gallstones	8	7	2	2	..	..	3	..
Carcinoma of cervix uteri	4	4	..	1	1	..	2	..
Chronic Intestinal Obstruction:								
Carcinoma of large intestine	4	4	..	3	..	..	..	1
Volvulus	1	1	..	..	..	..	..	..
Adhesions	2	2	1	1	..	..	..	..
Meckel's diverticulum	1	..	..	..	..	..	..	..
Acute Intestinal Obstruction:								
Intussusception	1	1	1	..	..	..	..	..
Mesenteric thrombosis	1	1	..	..	..	..	1	..
Meckel's diverticulum	1	1	..	..	..	..	1	..
Extra-uterine pregnancy	5	1	..	1	..	..	..	..
Rupture of kidney	1	1	1	..	..	..	..	..
Tabes mesenterica	1	1	..	..	..	..	1	..
Obstruction of both ureters	1	1	1	..	..	..	..	..
Other cases	16	12	..	5	..	..	7	..
GYNECOLOGICAL CASES:								
Carcinoma of cervix (curetted)	5	4	..	3	..	..	..	1
Pelvic abscess (vaginal puncture)	3	1	..	..	..	..	1	..
Dilating and Curetting	7	6	..	4	2	..	..	..
D. & C. ventral fixation or suspension	4	2	..	1	1	..	..	..
D. & C. cervix and perineum	11	9	1	5	3	..	..	..
D. & C. cervix and perineum, V. F.	10	7	1	6	..	..	..	..
Unclassified	5	2	..	1	1	..	..	..
Genito-Urinary Cases:								
Prostatic hypertrophy	4	4	..	2	..	1	..	..
Strictures	10	5	..	5	..	..	..	..
Hydrocele	7	5	2	3	..	..	..	..
Miscellaneous	12	5	..	5	..	..	..	..
HEAD CASES:								
Depressed fracture	3	2	..	2	..	..	..	..
Fracture of base	3	1	..	..	1	..	..	..
Concussion	4	1	1	..	..	..	1	..
Miscellaneous	5	3	..	..	1	..	2	..
Bone and Joint disease	30	18	11	5	2	..	..	..
Fistula in Ano	12	9	4	4	1	..	..	..
Empyema	2	2	1	1	..	..	..	..
Cancer of breast	8	7	2	3	..	..	..	2
Hemorrhoids	12	3	1	2	..	..	..	..
Tubercular glands of neck	8	4	1	3	..	..	..	..
Miscellaneous malignant cases	20	15	2	6	..	..	2	5
Accident cases	31	12	1	5	..	..	6	..
Miscellaneous cases	65	29	3	20	2	1	2	1
Fractures	25	11	2	7	..	..	1	1
	473	276	59	146	19	2	39	12

Explanation. — The results were seen personally by Dr. E. A. Codman, with the exception of a few who replied by letter. Those cases which replied by letter, even if they reported that they were well, are not classed as "perfect" because they were not examined, for it is found that patients frequently consider themselves well when they have hernia or other undesirable after-results. The results of cases as seen at the time of discharge and not heard from later are not given, because such figures can easily be obtained from the annual report of the hospital.

Perfect results are not discussed in the remarks at the end because they are perfect and speak for themselves.

Good results include those cases which, while they showed some benefit from the operation, were nevertheless not completely relieved. In what respects these lacked perfection is explained in the remarks. It must, therefore, be understood in reading the following that with a few exceptions, only the cases in which some undesirable symptoms remain after the operations are spoken of.

REMARKS ON THE CASES IN WHICH THE RESULTS WERE NOT PERFECT.

APPENDICITIS.

General Peritonitis. — In the above table only the cases which died of undoubted peritonitis are included under this heading. As a matter of fact, some of the acute appendicitis (wound drained) might justly be considered general peritonitis, but it is felt that classing them as such might give a false impression.

Wound drained. — Of the seven good results three were not perfect because they had ventral hernia or weak scars; four reported themselves well by letter, but since they were not examined cannot be called perfect.

Wound closed. — The two cases which were not improved complained of the same pain which they had before the operation. Of the five good results, four complain of constipation and indefinite pain. One wrote that she was well, but was not examined.

HERNIA.

Inguinal. — One case, where a double operation had been done, died from pneumonia on the forty-fourth day; the wounds were healed. One of the "perfect" cases was the huge hernia which Dr. Harrington operated on, on "Mass. Med." day; another small hernia has, however, appeared on the other side. Of the six good results, four only reported by letter, and therefore cannot be called perfect (one of these speaks of "a thickening" about the testicle). The other two had good anatomical results, but indefinite pain in the region of the scar, and one has a small hydrocele; the bad result was a recurrence ten months later.

Ventral. — The case which was not improved broke her stitches just after the operation and had to be resutured in the ward. The two good results had small, weak areas in the scars.

The *femoral hernia* was not examined.

MISCELLANEOUS LAPAROTOMIES.

Fibroids. — Two of the three good results reported themselves well by letter; the other was a case of myomectomy (J. W. E.) who complained of slight pain in the right side and had a large separation of the recti.

Salpingitis. — Of the eight "good results" five reported by letter only. One of these, from whom huge hydro-salpinges had been removed, had "never been so well"; three of the other four have disagreeable symptoms from the artificial menopause. Of the three who were examined, one was symptomatically well, but had a pelvic tumor; one was anatomically well, but had irregular menstruation; the third had a ventral hernia requiring operation.

Ovarian Cysts. — Two report themselves by letter as perfectly well; the other five scarcely lack perfection, but have minor symptoms, *e. g.*, bulging of scar, irregular menstruation, or tenderness.

Gallstones. — The two cases of "good results" have still slight attacks of pain. One has a sinus. Both had cholecystostomy.

Carcinoma of Cervix Uteri (abdominal hysterectomy). — The one good result reports herself perfectly well and gaining weight. The one "no improvement" was well six months before the disease returned.

Chronic Intestinal Obstruction from *Carcinoma of the large Intestine.* — All four had temporary relief only; one is known to be dead.

Volvulus. — A small boy who has had many operations for idiopathic dilatation of colon is benefited but has two fecal fistulæ.

Adhesions. — One had to be operated on again the next year, since which he has been well.

GYNECOLOGICAL CASES.

Carcinoma of Cervix (curetted). — Three were made much more comfortable. One died six months later.

From *dilating and curetting* for endometritis, metrorrhagia, etc., two cases showed "no improvement." In one of these the symptoms were probably due to osteo-arthritis of the spine. The other by letter said, "The operation done me but very little good." Of the four "good results" a case of metrorrhagia was cured, but has other uterine symptoms of minor importance. The other three regard themselves as better, but still complain of various troubles.

From *D. and C. and ventral suspension or fixation*, one case was in much the same condition as before; the other somewhat improved.

Of the cases where *D. and C. cervix and perineum* alone were done, two reported good results by letter, one was symptomatically better, due probably to a careful diabetic diet which was first prescribed for her after the operation. The three others were improved in some respects, but still complained of one thing or another. Three were no better for the operation.

Cervix and perineum with ventral fixation was, as a rule, done for procidentia, or prolapse. One case had nothing to complain of; the other six, though greatly improved, still lacked perfection in some minor respect.

Unclassified Gynecological Cases. — The good result was from a curettement after miscarriage. The case not improved was a girl with venereal warts who returned the next year (the warts still present and ulcerated) with well developed secondary syphilitic eruption.

GENITO-URINARY CASES.

Prostatic Hypertrophy. — All four cases were very feeble subjects and had very large tumors. On one the Alexander operation was done; the tumor was an adeno-fibroma weighing 100 gms.; this patient died at once. From another case an adeno-fibroma weighing 105 gms. was removed through a suprapubic opening with an écraseur; this patient's health was greatly improved; he has no hemorrhages, but is still obliged to use a catheter. A third case on whom Dr. Mixter did a Bottini operation reports that he has been "as well as ever he was in his life" since the day of his operation. This case is not considered perfect because he was not examined. The fourth case, marked "no improvement," refused operation in Dr. Harrington's service and returned later in another service, when a suprapubic cystotomy (M. H. R.) was done, through which "nearly all the urine still comes."

The results of the *strictures, hydroceles and miscellaneous genito-urinary cases* are only of individual interest.

HEAD CASES.

Depressed Fracture. — One reported himself well by letter. A boy who had a depressed fracture with hemorrhage from the middle meningeal and lateral sinus is well, except for a spastic condition of the left leg and arm.

A case thought to have been *fracture of the base* is in an insane aslyum.

A case operated on for *traumatic epilepsy* by introducing gutta-percha tissue between the scar and the brain was not improved.

BONE AND JOINT DISEASES.

Perfect Results. — One each of tuberculosis of patella (excision of sequestrated patella and drainage of joint; R. B. G.); "mice" in knee joint; displacement of semilunar cartilage; chronic synovitis of knee; septic punctured wound of knee; excision of shoulder for tuberculosis; excision of tubercular sequestra from humerus; partial excision of inflamed deltoid bursa; excision septic bursa of olecranon; excision of necrosed bone in amputation stump; excision (J. W. E.) muscle callous of quadriceps extensor.

Good Results. — One each of: excision of knee (the leg itself is said to be well but patient is too feeble to use it); excision of metatarsal and proximal phalanx of the great toe for tuberculosis — had a small sinus which has recently been excised and has healed; caries of ilium, — wound has healed, but patient still has pain; reduction of dislocated semilunar bone of wrist and excision of portion of fractured scaphoid — somewhat

sore and easily strained, some limitation of motion; abscess of hip — bedridden.

No Improvement.— Periostitis of femur; chronic synovitis of knee (probably tubercular).

Fistula in Ano. — Of the four good results, three reported themselves well by letter. The fourth has a granulating spot with probably a concealed sinus just inside sphincter. One has not improved — this was the same patient operated on for mice in the knee joint.

Empyema. — One patient complained "that her side troubled her," but she is well and able to do her work.

Cancer of the Breast. — Of the three "good results," two were in operations for recurrent nodules. Both of these show still further recurrence, and in one the growth has involved the brachial plexus causing complete paralysis of the arm. The third "good result" reports herself well by letter. Two cases died during the following winter, whether of the disease or not is not known.

Hemorrhoids. — The two "good results" reported themselves well by letter.

Tubercular Glands of Neck. — The three "good results" complain only that the scars are ugly or tender.

MISCELLANEOUS MALIGNANT DISEASES.

Perfect Results. — One was a sarcoma of the parotid; the other a case of supposed recurrent gland in the neck following operation on the lip five years before (the gland was not malignant). Of the six good results, four are known to have had recurrence. Two of those which died were not operated upon (both cancer of rectum).

Accident Cases. — The results are only of individual interest.

The Miscellaneous Cases are incapable of classification though the individual results are often of interest. Of the two cases "not improved" one, a morbus coxæ senilis, was not operated upon; the other, a girl with an obscure lesion of the elbow, was not helped by an exploratory operation. The bad result was in a case of tuberculosis of the oscalcis, who refused operation.

Fractures. — One perfect result was a fracture of the tibia in a boy of sixteen. The other was a case operated on for a fracture and dislocation of the head of the humerus in a fat woman. The head of the bone was excised and she now has an ideal result for excision of the shoulder.

The following cases died during or after the service:

Cases which died unoperated: Accident cases, 7; burns, 2; erysipelas, 1.

Cases in which death was probably hastened by operation: Acute appendicitis, 2; general peritonitis, 1; carcinoma of the intestinal tract, 3; carcinoma of the jaw, 1; carcinoma of the uterus, 3; duodenal ulcer, 1; fibroid of the uterus, 1; inguinal hernia (pneumonia), 1; cholelithiasis, 3; tabes mesenterica, 1; hypertrophy of the prostate, 1; pelvic abscess, 1.

Cases in which death was not hastened or probably not more than a few days by operation: One each of strangulated umbilical hernia, duodenal ulcer, obstruction from Meckel's diverticulum, cancer of the stomach, mesenteric thrombosis, rupture of the intestines, multiple tubercular sinuses, head injury. Two cases of general peritonitis.

Died after leaving hospital: One each of Hodgkins disease, cancer of the hepatic flexure, cancer of the cervix; two each of cancer of the breast and rectum.

Besides these, three cases died of other causes than those for which they were in the hospital.

A CASE OF PREGNANCY IN A UTERUS BICORNIS UNICOLLIS.

BY CHARLES M. GREEN, M.D., BOSTON.

CAREFULLY observed cases of pregnancy in bicornate uteri are sufficiently rare to make the following case worthy of record:

M. F. entered the Boston Lying-in Hospital Jan. 27, 1896, with the following history: —

1893, miscarriage at two months.

1894, full-term child, easy labor.

1895, June 3, premature labor at seven months; no catamenia since.

1896, Jan. 26, 7 P.M., while sitting in the house of a friend, patient began to flow profusely (fully a quart of blood was said to have been collected), finally fainted, and was seen by the late Dr. George Haven, who advised removal to the Lying-in Hospital.

On entrance patient was in fair condition, pulse 105, color good. The cervix was not wholly taken up, the external os uteri was dilated to an inch in diameter. The presenting head was high, O. D. P. The abdomen was large and broad for that period of pregnancy (seven months). There was a large and well-marked median sulcus, suggesting twin pregnancy. During a uterine contraction this sulcus became more marked and could be distinctly felt: beginning just below the umbilicus it extended upward, becoming broader and deeper, and dividing the fundus uteri into two distinct and nearly equal parts. The part on the right was firm and resistant: in it the outline of the fetus could be distinctly palpated, and the fetal heart could be heard over it. The left cornu was less resistant; no part of the fetus could be felt in it; nor could the fetal heart be heard there, but a loud placental bruit was heard over this area. (Figure 1.) During a contraction both halves of the uterus seemed to harden equally; but the left half stood out with greater prominence.

Four hours after entrance dilatation was complete, the membranes ruptured, and a large amount of liquor amnii escaped. Five minutes later the baby was born, and was followed by some large, dark clots. The baby weighed only 3.75 lbs., and lived but six hours.

After the birth of the baby abdominal palpation showed on the left a mass which had the size and feeling of a normal uterus during the third stage. To the right of this, and closely connected with it, was a smaller mass, presumably that portion of the uterus which had contained the child. (Figure 2.)

At the end of forty minutes pressure was made on the left, or larger part of the uterus and the placenta was easily expressed. After the birth of the placenta, the left cornu of the uterus

became of an equal size with the right: the division between the two cornua was very distinct, and both were well contracted. (Figure 3.)

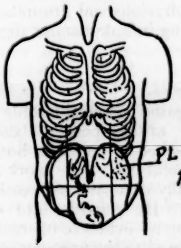


FIG. 1. — Before birth of child.

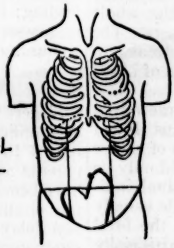


FIG. 2. — After child (third stage).

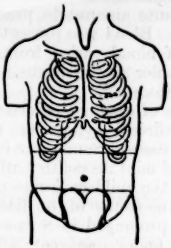


FIG. 3. — After placenta.

There was no post-partum bleeding. The amniotic sac was partially divided into two parts, obviously by the sulcus between the two cornua.

The labor was carefully observed and recorded by Dr. Francis P. Denny, of Brookline, then house physician, and to him I am indebted for the notes of the case. The puerperium was under my own observation; and the bicornate condition was easily appreciable to the touch. On the fourteenth day the uterus was explored with a sound: the sound would pass only a short distance in the median line, but deviated towards one side or the other. The depth of the right cornu was four inches; that of the left, four inches and a half.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.

THE PATHOLOGICAL ANATOMY OF SHIGA BACILLUS INFECTION OF THE INTESTINES IN INFANTS.

HOWLAND [1] reports the results of autopsies in the New York Foundling Hospital, the Babies' Hospital and the Nursery and Child's Hospital. The Shiga bacillus was proved to be present in the great majority of cases by examination of the stools, but in 7 cases it was obtained post-mortem by scraping the mucous membrane of the colon, and in 3 cases was obtained both ante-mortem and post-mortem. All corresponded to the type known as the "acid," "Harris" or "Flexner-Manila" bacillus. The first 17 cases were winter cases and the last 15, summer cases. There seemed to be no difference in the histological findings between the two. Four cases are reported in full detail and discussed. The conclusion is that the Shiga bacillus infection has a most diverse pathological anatomy, and a large percentage of the fatal cases show no evidence of profound structural lesion. The question arises as to how much of the process is to be regarded as due to the Shiga bacillus. The evidence, the author thinks, is in favor of the belief that the primary necrotic lesion is the result of the action of the dysentery bacillus, the subsequent ulceration being brought about probably by the interaction of various micro-organisms and the ordinary processes of demarcating inflammation. The lesions in the intestines must be considered as of two kinds: (1) Those due to the dysentery bacillus, and (2) those from toxic products of this and perhaps other organisms. He says that in summing up the evidence we shall have to say that there are comprised under the lesions associated with the Shiga bacillus all grades and types of diarrheal disease as distinguished by clinical symptoms and pathologic findings, and that it can be affirmed that no particular type is distinguished from the others by a special etiology.

[1] Medical News, March 5, 1904. Abstract in The Journal of the American Medical Association, March 19, 1904. Vol. XLII, p. 794.

A CLINICAL STUDY OF SIXTY-TWO CASES OF INTESTINAL INFECTION BY THE BACILLUS DYSENTERIÆ (SHIGA) IN INFANTS.

The authors [2] studied 64 successive cases of diarrhea at the Vanderbilt Clinic during the summer of 1903. No selection of cases was attempted. Sixty-two showed infection with the Shiga bacillus. They were unable to determine whether the patients had previously suffered from diarrhea and were for this reason more susceptible to infection with the bacillus dysenteriæ. No other predisposing cause in the way of disease could be discovered. Fourteen were entirely and two partly breast-fed. The others were fed in a great variety of ways. Thirty-one were well nourished, two fairly nourished, 11 poorly nourished and 15 in miserable condition at the beginning of the attack. The most important factor in determining the character and severity of the disease seemed to be the previous condition of the child, — those who were in good condition being much more likely to have a mild or only moderately severe form of the disease. Sixteen cases were very mild, 31 were moderately severe and 14 severe. Thirty-four of the cases did not show a temperature of over 100.5° F. The temperature of the severe cases was usually considerably elevated, but many of them and some of the most severe ran an almost afebrile course. Vomiting occurred in 19 cases, usually at the beginning of the attack. The number of

[2] La Fétra and Howland Archives of Pediatrics, 1904, Vol. 21, p. 161.

movements in twenty-four hours was from 2 to 5 in 5 cases, 5 to 10 in 35 cases, over 10 in 20 cases. In two the movements did not contain mucus. Mucus was present in all the other cases, varying from a minute amount to practically the whole movement. Blood was present in 17 cases. The quantity of blood varied from a few streaks to enough to color all the mucus. No clots of blood were ever observed.

All types of diarrheal disease as characterized by their clinical symptoms were thus found among the cases. Some were examples of severe and some of mild ileocolitis; others could only be classed as the mildest forms of intestinal indigestion. The course of the disease, while usually short, was prolonged in 8 cases. All the fatal cases were under one year; all were artificially fed and were in very poor condition when first observed; they also had only the poorest care and attention. All the breast-fed cases ran a very mild course, the average being three to four days after coming under observation. Save for the bacteriological findings there was nothing to indicate that their sickness had any relation to true dysentery. Blood was observed in but one case. The acid type ("Harris") of organism was found in 42 cases, the true Shiga in 15, both in 5. The type of infection seemed to make no difference in the severity of the disease.

Serum was injected in 10 cases; 4 were infections with the acid type of organism and were given "Harris" serum; 6 were infections with the true Shiga bacillus and were given "Shiga" serum. This treatment was used only in the severe cases. The number of cases treated was too small to warrant any conclusions. While of apparent benefit in some, in others no effect whatever was noticed.

STARCH DIGESTION IN INFANCY.

Shaw [3] studied 35 infants, giving them barley water in place of their regular food. One hundred such barley meals were removed in from fifteen minutes to two hours after feeding. Free starch was present in 2%, erythrodextrin in 41% and achroodextrin or maltose in 57% of the tests. In the two instances in which free starch was detected the babies were sick. Starch conversion was found in these same infants at other times.

A ½% starch solution was added to the stomach contents removed from 8 infants under two months old, one-half to two hours after a regular or a barley water feeding. The youngest infant was six days old and a breast-milk feeding was removed a half-hour after nursing. Three parts of the stomach contents and one part of the starch solution were mixed and placed in a thermostat for an hour. On the addition of Lugol's solution, the indigo-blue of starch did not appear in a single instance.

Saliva was obtained from 7 babies ranging in age from sixteen days to two months. Partial conversion of starch took place in two minutes in all cases.

He concludes that the saliva of very young infants contains a diastatic enzyme capable of converting small amounts of starch into maltose; that the diastatic action of the saliva may continue in the stomach as long as two hours after feeding; that, on physiological grounds, there is no reason why young infants cannot digest small amounts of starch.

[3] Albany Medical Annals, January, 1904.

THE HEREDITY OF RACHITIS.

Siegert [4] investigated a considerable number of families, mostly of the poorer classes, with regard to the presence of rachitis both in the parents and in the children. His work seems to have been as carefully done as was possible under the circumstances. He regards late dentition and delay in walking as evidence of rachitis, but rarely gives any data as to the presence or absence of skeletal changes.

He concludes that heredity is one of the most important etiological factors of rachitis. It is transmitted principally by the mother. Hereditary rachitis is milder and occurs later in breast-fed than in artificially-fed infants, occurring in them very seldom before the third month. The severest forms of rachitis may, however, occur in the breast-fed infants of rachitic parents, while the natural nourishment is, in those in which there is no inherited predisposition, the best preventive for the disease. Prolonged nursing and the age of the mother are not in themselves direct causes of rachitis. Infection may be excluded as an etiological factor. Social position and diseases of the digestive and respiratory tracts are, next to heredity, the chief causes of rachitis. The time of dentition and standing is dependent on constitutional hereditary influences.

LOCATION AND PHYSIOLOGICAL DISPLACEMENT OF THE CARDIAC APEX IN CHILDREN FROM FIVE TO FIFTEEN YEARS OF AGE.

Terrien and Lamy [5] first studied the position of the impulse when the child lay on its back, and noted the changes in position when the child lay on the right and left sides.

They found that in the dorsal decubitus at five years the impulse was usually in the fourth space. With the increase in age it descended little by little, following an almost vertical line which passed almost always outside the nipple. At ten years it was at the upper border of the fifth rib and was nearer the mammillary line. At fourteen years it was in the fifth space inside the mammillary line. The impulse at first descended almost vertically, then moved mostly transversely.

In the left lateral decubitus the apex always moves very markedly, even at five years. It moves in an oblique line backward, downward and outward, the amount of movement varying with the age of the child. At five years the deviation is to the left and very little downward, being from 18 mm. to 20 mm. transversely, and only 5 mm. downward. At seven years it moves

[4] Jahrb. f. Kinderheilkunde, 1903, vol. 58, p. 929.
[5] Revue Mensuelle des Maladies de l'Enfance, 1903, vol. 21, p. 548.

on the average 22 mm. transversely and 14 mm. downward. From twelve to fifteen years the deviation is almost the same in both directions, 30 mm. horizontally and from 20 mm. to 25 mm. vertically.

In the right lateral decubitus the displacement of the apex is more complex, being much less marked and also subject to numerous individual variations. From five to seven years it descends almost vertically, following a line which is inclined very slightly inward. The total displacement is about 15 mm. After seven years it descends very little, but moves almost horizontally inward, the displacement being very much less than in the left lateral decubitus.

On account of the relative infrequency of pericardial adhesions in childhood and the difficulty in their diagnosis, these facts should be of use, as a lack of mobility of the apex is one of the most important signs in the diagnosis of this condition.

CONTRIBUTION TO THE STUDY OF ACID INTOXICATION IN THE CHRONIC DISEASES OF NUTRITION IN THE INFANT.

Keller and Bergh, some years ago, developed the theory that athrepsia was due to an acid intoxication resulting from the absorption of abnormal acids formed in the intestine. The organism responded to this intoxication by manufacturing ammonia to neutralize the acids. They found large quantities of ammonia in the urine in these cases. More recently Keller has asked if the acidosis might not have another origin, namely, saponification of fats in the intestine. During saponification fats take up the available alkalis, calcium and magnesia. These not being absorbed can, therefore, no longer neutralize the acids which pass into the blood. Keller's experiments in this direction did not give definite results.

Steinitz [6] repeated his experiments on both well and dyspeptic infants to whom he gave skimmed milk or milk with cream added. If Keller's theory is correct the feces should contain but little alkali and the urine but little ammonia and much alkali when skimmed milk is given, and, on the other hand, the feces should contain a large quantity of alkali and the urine little alkali but much ammonia when rich milk is given. His experiments prove the truth of Keller's theory. He sums up his work as follows: Feeding milk rich in fat causes the appearance of large amounts of ammonia in the urine. This is due to the utilization of the alkalis in the intestine. The alkalis which, when skimmed milk is used, pass into the blood and there neutralize the acids, the intermediary products of metabolism, are fixed in the intestine and eliminated with the feces when milk rich in fat is given. In order to avoid too great a loss of alkalis in these conditions the organism is obliged to manufacture ammonia to neutralize the acids. The infant's organism, however, possesses to only a limited degree the power to manufacture ammonia. A rich milk, therefore, robs the infantile organism of alkalis. This impoverishment occurs in the sick infant as well as in the well infant. Since the alkalis play an important part in the normal development of the organism this impoverishment must be harmful. Milk rich in fat acts in still another way. Like all fats it causes an increase in the phosphoric acid eliminated in the urine, which acid, not finding available alkalis, can only be neutralized by ammonia which the organism is obliged to furnish in large quantities.

[6] Jahrb. f. Kinderheilkunde, 1903, vol. 57, p. 689. Abstract in Revue Mensuelle des Maladies de l'Enfance, 1904, vol. 22, p. 44.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

THE nineteenth annual meeting was held at Washington, May 10, 1904.

The meeting was called to order by the President, DR. WM. T. COUNCILMAN, of Boston.

(Concluded from No. 22, p. 597.)

INFECTIOUS NEURITIS: WITH REPORT OF A CASE. DR. J. J. PUTNAM.

DR. PUTNAM reported, in behalf of Dr. Waterman and himself, a series of cases illustrating different sorts of reaction of the nervous system to infectious processes. A possible bond between certain of these cases lay in the fact that they had occurred during the same period, namely, in the winter of 1902–03. The most important case was that of a man of thirty who suffered from an unusual, gradually progressive form of "myelitis" which spread slowly upward through the whole length of the spinal cord, the entire illness covering a period of about two months. All the functions of the cord were involved, and the paralysis was associated with constant fever, leucocytosis, gradually increasing pyelitis, and, eventually, with bloody dejecta. The post-mortem examination showed a disintegration of the nerve elements accompanied with but few signs of active vascular change or of exudation processes, and no evidence of antecedent anemia as due to arterio-sclerosis or thrombosis.

The other cases were of the following sort; meningo-encephalitis, possibly due in part to alcoholic excess, progressive paralysis, eventually involving certain cranial nerves, but ending in complete or incomplete recovery, infectious neuritis followed by encephalitis, cases of the type of poliomyelitis, but coming on slowiy, and, myelitis during typhoid. He called attention to the complex results of infections of the nervous system and the impossibility at present of making sharp divisions.

THE CLINICAL FEATURES, PROGNOSIS AND TREATMENT OF CEREBRO-SPINAL MENINGITIS IN INFANTS AND CHILDREN. DR. HENRY KOPLIK.

The cases studied by Dr. Koplik numbered 89, of which 39 were absolutely confirmed by lumbar puncture; 35 were tuberculous, 1 staphylococcus, 1 streptococcus and 2 pseudo-influenza cases. Sixty per cent of the cases were below two years of age. The mode of onset was, as a rule, sudden, except in the tuberculous cases. Rigidity of the neck was present in all cases at some time. Babinski's reflex was present in 77%, while Kŏnig's reflex was of little value in the cases under two years of age. In the tuberculous cases, Macewen's sign was present in the majority of instances.

Optic neuritis was more common in the tuberculous type than in any other class of cases.

Dr. Koplik considered the disease to be self-limited and scarcely influenced by any mode of treatment. He did not consider lumbar puncture as curative nor had it, in his cases, relieved the symptoms of pressure.

A CASE OF SPASMODIC STRICTURE OF THE ESOPHAGUS WITH SACCULATION, TREATED BY DILATATION, AND LATER, BY GASTROTOMY. DRS. JAMES TYSON, EDWARD MARTIN AND JOSEPH EVANS.

DR. TYSON read this paper, which opened with a review of the literature upon the subject of diverticula and dilatations of the esophagus, their etiology, treatment and diagnosis. Then followed the detailed clinical history of two extremely interesting cases of spasm of the cardiac orifice with resulting dilatation of the esophagus. The first patient was a man aged thirty-three years, who had been suffering from dysphagia from the time he was twelve years old, his first attack coming on suddenly while he was at his supper, and compelling the immediate regurgitation of all that he had eaten. As he described his symptoms, "while in the act of swallowing solid food he was suddenly seized with a sensation of the material sticking in the esophagus at a point posterior to the middle of the sternum." For a moment he felt as if his heart had stopped beating and then, without any nausea, he threw off the food and was relieved. He made several successive attempts to swallow more food but without success. After four or five days he discovered that by drinking very hurriedly a large amount of liquid immediately after the taking of solid food he was able to overcome the stoppage in the esophagus and could feel the material enter the stomach; in addition to the drinking of the liquid it was necessary for him, however, to exert considerable effort. For fifteen years he continued this method of feeding, but at times the dysphagia would increase and he could not force the food into the stomach. At such times, and whenever any remnants were left in the esophagus, the food was immediately regurgitated or would be a few hours later. If any food remained at the time he was asleep it would run out of his mouth and be discovered by him the next morning. If he assumed the horizontal position immediately after eating an irritating cough would start in and he could secure relief only by regurgitating the food. Dr. Tyson attempted dilatation with all sorts of tubes but without much success. Attempts to measure the capacity of the dilated esophagus showed that he could drink thirty-four ounces of fluid without any unpleasant sensation and, apparently without any of it reaching his stomach.

The second case was a woman, aged thirty-three, who had been suffering in much the same way for a period of eight months. A special instrument was devised by Dr. Martin for dilatation in this case, the principle of the instrument being the same as that of the Kollmann urethral dilator. It was felt that its continued use would have given satisfactory results through the production of a partial paralysis of the muscular ring at the cardiac opening, but in order to put the esophagus at rest, and to force the patient's nourishment it became necessary to do a gastrostomy.

IDIOPATHIC DILATATION OF THE ESOPHAGUS: CARDIOSPASM. DR. B. W. SIPPY.

DR. SIPPY reported a case in all essentials like that described above by Dr. Tyson. He exhibited the specimens from this case, the patient having died shortly after a gastro-enterostomy performed for the relief of what was at the time believed to be a pyloric obstruction. At autopsy it was found that there was no anatomical narrowing of the cardia, but an hypertrophy of the circular fibres of the esophagus wall so that it was fully one quarter of an inch in thickness.

DILATATION OF THE ESOPHAGUS AND STOMACH. DR. FRANCIS P. KINNICUTT.

Another case of the same general character was described by DR. KINNICUTT and the pathological specimens shown. The esophagus from this patient had a capacity of 1,800 cm. of fluid and was, so far as could be determined, the most enormously dilated stomach and esophagus recorded.

Discussion. — DR. JANEWAY reported a case like Dr. Tyson's, except that it was complicated by hemoptysis. This patient could take 800 cm. of fluid into the esophagus without difficulty, and a photograph was exhibited showing the condition with this amount of dilatation. Dr. Janeway spoke of two mistakes often made in these cases, *i. e.*, considering them as hysterical, and as tuberculosis.

DR. MELTZER, having been called upon to say something of this condition, described his discovery of and first description of it in 1888. At that time he saw a case that had been suffering from it for nineteen years and presenting the symptoms given above. Previous to that time they had all been described as idiopathic or hysterical dilatations. Dr. Meltzer was the first to determine the true condition and ascribe to it the proper cause and mode of action. His patient was operated upon by a gynecologist five years later for a supposed malignant growth, and when, later, an autopsy was done it was found that the anatomical condition was precisely what he had described from the theoretical standpoint.

SECOND DAY, WEDNESDAY, MAY 11, 1904.

At the opening of the morning session the following-named gentlemen were elected to membership: Drs. P. K. Brown, San Francisco; Joseph Collins, New York; David L. Edsall, Philadelphia; Frederick G. Finley, Montreal; H. C. Gordinier, Troy; Richard M. Pearce, Albany; Mark W. Richardson, Boston; and Richard P. Strong, Manila, P. I.

Honorary Members: Drs. Beverly Robinson, Starling Loving and Henry P. Walcott.

The following officers were elected for the ensuing year: President, Dr. Edward L. Trudeau; vice-president, Dr. Frank Billings; secretary, Dr. Henry Hun; treasurer, Dr. J. P. Crozer Griffith; recorder, Dr. S. Solis Cohen; councillor, Dr. F. Forchheimer; representative in the Executive Committee of the Congress of American Physicians and Surgeons, Dr. William Osler; alternate, Dr. F. H. Williams.

THE RELATION OF CELLS WITH EOSINOPHILE GRANULATION TO BACTERIAL INFECTION. DR. EUGENE L. OPIE.

DR. OPIE presents a most elaborate study of the action of eosinophile cells when micro-organisms are introduced into the body. He reviews the literature of the subject at length, quotes from his own published work, and then relates in detail the behavior of these leucocytes during the course of fatal and of non-fatal bacterial infection. He worked with a variety of organisms and offers the following conclusions:

Certain bacteria (*Bac. tuberculosis, Bac. choleræ suis*) producing somewhat chronic, fatal infection in guinea pigs cause the eosinophiles to disappear from the circulating blood. After death a few can be found in those tissues in which they are usually found in abundance. During more active and acute infections produced by inoculating bacteria into the peritoneal

cavity, eosinophile leucocytes disappear almost completely from the peripheral circulation within a few hours. After the inoculation of an organism producing an infection from which the animal is capable of recovering they disappear from the peripheral circulation, so that their proportion may fall from 5 or 10% to less than 1%. The number then gradually increases until in four or five days it exceeds the normal proportion, and then slowly falls back to normal. When the number of eosinophiles is at the lowest point in the peripheral circulation they are found in great numbers in the vessels of the inflamed mesentery and omentum near the site of inoculation. Unlike the polynuclear leucocytes they rarely if ever act as phagocytes. In the region of the bacterial poison they undergo degenerative changes of which nuclear fragmentation is the most characteristic. Under the influence of severe bacterial infection eosinophile myelocytes, together with other elements, usually regarded as characteristic of the bone marrow, accumulate in the spleen and may be found in the circulating blood. The occurrence of this phenomena within two to four hours demonstrates that the elements are derived from the bone marrow and are not formed in the spleen. Bacteria exert a chemotactic influence upon cells with eosinophile granulation, attracting them from the circulating blood to the site of inoculation and from the bone marrow into the blood, Eosinophile leucocytes, like the finely granular polynuclears, accumulate in the neighborhood of bacteria injected into the body, and through they rarely act as phagocytes, have a part in the series of changes which follow bacterial invasion.

A NEW CASE OF CHLOROMA WITH LEUKEMIA, WITH A STUDY OF THE CASES REPORTED SINCE 1893. DRS. GEORGE DOCK AND A. S. WARTHIN.

Dr. Dock presented these conclusions: (1) Chloroma is a tumor-like hyperplasia of the parent-cells of the leucocytes, primary in the red marrow, the periosteum being involved only secondarily. The possibility of a primary chloroma in any part of the body in which white cells are formed must be considered. (2) As a result of this leucoblastic hyperplasia atypical leucocytes may appear in the circulating blood in varying number. Chloroma is therefore to be classed with the leukemias. (3) The white cells resulting from the atypical proliferation may in different cases attain different stages of differentiation. In some cases they may be of the large lymphocyte type, in others of the type of neutrophile or eosinophile myelocytes. (4) It is evident, therefore, as in the case of other leukemias, that the blood picture in chloroma may be very varied, and if this be used for a basis of classification it is possible to designate different varieties of chloroma. (5) The essential difference between chloroma and other forms of leukemia is the more marked neoplastic character of the former and the formation of the green infiltrations and metastases. (6) Chloroma is probably to be regarded as a more malignant form of leukemia. This malignancy of chloroma depends chiefly upon the replacement of the red marrow and erythroblastic elements by the proliferating white cells and the consequent diminished red cell formation. (7) The cause of the green color remains unknown.

TYPES OF SPLENIC ANEMIA OR SPLENOMEGALY. DR. ALFRED STENGEL.

Dr. Stengel reported a series of cases that had been carefully studied clinically and microscopically. The first case was that of a child three years old, that had at the age of two shown an increase in the size of the abdomen and marked pallor. Physical examination showed an enlarged spleen, and blood examination gave 30% of hemoglobin, 2,900,000 red cells and 7,600 white cells. A general dropsical condition appeared, and at the same time a leucocytosis of about 20,000. Autopsy revealed a general splenic enlargement with infarcts in the spleen and kidneys, a bronchopneumonia, vegetative endocarditis of the mitral valve and miliary tuberculosis of the lungs, liver and spleen. The lymphatic glands showed a marked hyperplasia and necrosis of the end endothelial cells.

The second case was an adult showing splenic anemia with cirrhosis of the liver. There were a generally stunted growth, club fingers and pigment changes in the skin. Autopsy examination disclosed hyperplastic changes in the spleen, cirrhosis of the liver, and fibroid changes in the lungs and other organs. The third case was a young woman twenty-five years of age whose condition was diagnosed as primitive splenomegaly. The spleen was removed by operation and the patient recovered. Microscopic sections of the spleen showed very marked hyperplasia with extensive fibroid growth.

Discussion. — Dr. Osler thought that these cases illustrate the extreme complexity of the subject and said that while the third case belonged to a very definite group it was doubtful if they could often be recognized clinically. He had seen such a case operated upon by Miculiez some years ago and the patient was afterwards exhibited before the German Surgical Congress. Since Dr. Osler's last report on this subject he has seen nine cases of great enlargement of the spleen associated with anemia. One was a case of so-called primitive splenomegaly; 4 were cases of chronic splenic enlargement with pigmentation of the skin; 2 belonged to that group which resembles Hanneaux disease, and 2 were cases of splenic anemia subsequently becoming pernicious anemia.

Dr. Sippy related one case which he had seen since the report he published in 1899. The patient was a woman with a movable spleen that came down below the umbilicus and readily moved about in the abdominal cavity. She presented the picture of a gradually developing anemia. The spleen was removed by operation and she made a complete and satisfactory recovery. Dr. Sippy raised the question whether the splenic anemia in these cases might be due to poisonous substances secreted by the enlarged spleen or whether it be due to malnutrition.

Dr. Cabot replied to this point, that there is no evidence, clinical or experimental, that splenic anemia is ever due to malnutrition.

THE AGGLUTINATION AND FILTRATION OF TRYPANOSOMES. DR. F. G. NOVY.

The main features presented in this work by Dr. Novy and his associates Drs. McNeal and Hare may be briefly summed up as follows: (1) The trypanosome present in the Philippine surra can be cultivated artificially. (2) Attenuated cultures of this organism can be obtained as in the case of *Trypanosome brucei*. (3) This trypanosome is differentiated by its cultural characteristics from *Trypanosome brucei* and *Trypanosome lewisi*. (4) The Philippine surra is therefore a distinct disease, different from nagana, and this observation confirms the work of Laveran and Mesnil on the non-identity of nagana and the surra of Mauretius. (5) The morphological differences between the Mauretian and Philippine trypanosomes suggest the probability that these organisms are distinct species, and hence that the term "surra" covers a group of closely allied diseases.

ZONAL NECROSIS OF THE LIVER. DR. E. L. OPIE.

DR. OPIE reviewed the vascular and other anatomical features peculiar to the liver structure to show the varying facility with which necrosis occurs in different zones of that organ. He referred at length to the experimental work which has heretofore been done on this subject, and then considered in sections the conditions associated with zonal necrosis of the liver in various diseases, dividing the subject into central necrosis, peripheral necrosis and mid-zonal necrosis, and followed that with a special consideration of the relation of mid-zonal necrosis to acute yellow atrophy of the liver. He related the clinical and anatomical histories of cases in each class. The paper is an extremely interesting one, not susceptible of satisfactory abstraction, and can be profitably read in full by those who are interested in the subject.

EXPERIMENTAL ARTHRITIS AND ENDOCARDITIS PRODUCED BY A STREPTOCOCCUS ISOLATED FROM THE BLOOD OF A CASE OF RHEUMATISM, ENDOCARDITIS AND CHOREA. DRS. M. J. LEWIS AND W. P. LONGCOPE.

In a fatal case of rheumatism, endocarditis and chorea a streptococcus was isolated from the blood before death. This organism did not differ materially from the common varieties of Streptococcus pyogenes in cultural properties, but produced very characteristic lesions in rabbits when injected intravenously. Such inoculations were always followed after a few days' incubation period by a multiple arthritis which usually started in the ankles. In one rabbit extensive vegetations were found on the mitral valve while typical infarctions were seen in the spleen and kidneys. This organism was believed to be the same as that described by Wassermann, Meyer, Poynton and Paine and Ainley Walker, and considered by them to be the specific cause of rheumatic fever.

Recent Literature.

A Manual of General or Experimental Pathology for Students and Practitioners. By WALTER SYDNEY LAZARUS-BARLOW, B.A., B.C., M.D., F.R.C.P., Director of the Cancer Research Laboratories of the Middlesex Hospital. Second edition. Philadelphia: P. Blakiston's Son & Co. 1904.

The first edition of this work appeared five years ago and was favorably reviewed in this journal at that time. The present edition has been greatly enriched by the addition of new matter, and the plan of the work has been slightly altered so that it forms a companion volume to the author's "Pathological Anatomy and Histology," recently issued.

In describing the advances made in pathological knowledge the names of the chief investigators are mentioned. This commendable feature adds to the value of the book and quickens the student's interest in the masters of medical science. The fact that the number of authors cited in the text has been increased by nearly two hundred shows that the work of revision has been thorough.

The general scope of the work is not quite the same as that of the well known textbooks of Thoma, Ziegler and Ribbert. It deals with pathological physiology and occupies an intermediate place between these works on general pathology and Krehl's classical "*Pathologische Physiologie.*"

There is a good detailed account of the pathology of the circulation, but unfortunately the results of the important studies made by the young "Leipsic School" are not incorporated.

The author agrees with other recent writers that the old division of anemias into primary and secondary should be abandoned. He does not, however, mention the classification of Ehrlich who divides anemias into the simple and the pernicious, according as to whether blood formation occurs in a normal or abnormal manner. Lazarus-Barlow groups the anemias into two great classes: anemias in which leucocytic changes are absent and those in which leucocytic changes are present. The first group is subdivided into (*a*) anemias in which the principal change is a diminution in the number of red blood corpuscles, and (*b*) anemias in which the principal change is a diminution in the hemoglobin content of the individual red blood corpuscles. This classification seems more artificial and less satisfactory than that of Ehrlich.

In the short discussion of the present views on coagulation of the blood the importance of tissue fluid is recognized and the experiments of Delezenne and other recent workers are described. The chapter on edema is shortened in this edition, but the author's own researches on this subject make his treatment of this topic of particular interest. The various theories of lymph and edema formation are clearly set forth.

Inflammations, the degenerations and new growths are considered in this volume as well as in the textbook of pathological anatomy. This arrangement is confusing and leads to some repetition. We think it is a better plan to consider together in one article the anatomical and physiological aspects of these topics.

In the excellent chapter on infection and immunity there is an admirable presentation of Ehrlich's side-chain theory.

The section on fever is worthy of special commendation. It contains a summary of recent literature which is one of the best in English.

The discussion of fatty metamorphosis needs further revision. The assertion that fatty degeneration of the liver and other parenchymatous organs occurs as the result of phosphorus poisoning can no longer be accepted as true. Rosenfeld has clearly shown that the fatty change is due to fatty infiltration. Furthermore, it has been recently shown that other supposed examples of fatty degeneration are in reality fatty infiltrations.

Pathological physiology is a subject of fundamental importance to the physician. This volume deserves a wide circulation as it covers the field better than any other English work and is interesting throughout. The practitioner who is striving against routinism and the student who wishes to found his knowledge of clinical medicine on the solid rock of natural science will be strengthened and stimulated by this book.

King's Manual of Obstetrics. By A. F. A. King, M.D., Professor of Obstetrics and Diseases of Women, in the Medical Department of the Columbian University, Washington, D. C., and in the Medical Department of the University of Vermont. Ninth edition, revised and enlarged. In one 12mo volume of 628 pages, with 275 illustrations. Philadelphia and New York: Lea Brothers & Co. 1903.

This book shows its continued popularity by the appearance of a new edition, the ninth. While more than the usual manual in its scope, yet the book has not been changed materially from the former edition. It still retains its elementary character, and no attempt has been made to develop it into a systematic treatise.

The book has been enlarged slightly, new illustrations have replaced old ones, and some of the text has been rewritten in order to make it correspond to modern practice. This it does to an unusual degree for a manual, and although necessarily too much abbreviated to use alone as a textbook, the work is one to be commended, and contains much of value.

The Principles of "Open-Air" Treatment of Phthisis and of Sanatorium Construction. By Arthur Ransome, M.D. Smith, Elder & Co.: London. 1903.

The name of the author of this book would in itself ensure respectful attention to the contents of the book. In this case a series of essays has been put together bearing chiefly upon the sanatorium treatment of phthisis, although one chapter is devoted to the "home treatment" of patients. Essay II seems to the reader somewhat desultory and, although containing much that is true, does not on the whole seem quite in place in the midst of matter devoted chiefly to the details of sanatorium treatment. The diagram of a sanatorium is cleverly conceived, and in one particular especially is worthy of consideration, namely, the arrangement of a two-story building by which the balcony of the upper room scarcely overshadows the chamber below, a detail of great importance in any institution of this nature.

The book is worthy of a conspicuous place upon the book-shelves of anyone who is devoting his attention to the study and treatment of tuberculosis according to modern methods.

Enzyklopädisches Handbuch der Schulhygiene. A. Pichler's Wittwe & Sohn: Leipzig and Wien. 1904. 1055 pages.

This valuable handbook embraces the whole range of school hygiene. Every topic connected with this important subject being treated, and nearly all civilized nations levied upon for contributions. The work is compiled by Dr. R. Wehmer of Berlin, assisted by thirty or more collaborators representing nearly as many different countries.

The volume is fully illustrated with more than 300 cuts, plans and heliotype illustrations. Physicians, school superintendents, teachers and others who are desirous of being well-informed upon this subject will find it a valuable work of reference.

THE BOSTON

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ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

The one hundred and twenty-third annual meeting of the Massachusetts Medical Society came to an end Wednesday of this week with the usual anniversary dinner. The literary portion of the meeting was arranged this year much as in the several preceding years by reducing the number of original papers to relatively few, and concentrating attention on certain special subjects of great general interest. Experience has shown that through this method the section meetings are better attended.

The Shattuck Lecture, which was this year delivered by Dr. George S. Huntington of New York on the subject, "The Relation of Comparative Anatomy to Medical Education and Practice," was particularly well attended. Dr. Huntington presented a cogent argument on the desirability of the study of comparative forms as a means of the better understanding both of pathological and normal conditions in the human subject. The lecture was admirably illustrated by lantern slides. It will later appear in these columns. The annual discourse by Dr. Harold C. Ernst concerned itself with certain educational problems of the present and future and brought up again the question of two degrees for students of medicine, depending upon the character of work done in their undergraduate course.

The retiring president of the society, Dr. George E. Francis, presided at the annual dinner, which as usual was largely attended. The custom of reducing the number of after-dinner speeches is also to be approved since the hall is a peculiarly difficult one in which to be heard.

Dr. Francis first introduced Bishop Vinton of the Episcopal Diocese of Western Massachusetts, who spoke in a happy vein of the physician, old and new, and of the responsibilities and privileges of the medical profession. He thought it possible that the physican considered somewhat too exclusively the physical side of his patient, and that it might be well if more stress were laid upon the psychical element in his ministrations. This is undoubtedly being realized to a very much greater degree than Bishop Vinton recognizes, although possibly not in precisely the way he indicated. Dr. Horace D. Arnold spoke in place of Dr. George W. Gay, who was unavoidably absent, on the general subject of the Boston Medical Library and the proposed enlargement of its scope into a so-called academy of medicine. He urged upon the physicians of the state their hearty co-operation in a plan through which the library may hold medical meetings which shall not supersede those of existing societies, but will tend to combine the activities of Boston and outlying districts. He expressed the hope that such an organization might be representative, not only of Boston and Massachusetts, but also of New England. The Hon. Carroll D. Wright spoke humorously, and yet with much seriousness, upon the subject of trade unionism, designating the medical profession as the oldest union in the country. He insisted upon both the necessity and desirability of combination and organization, if perfection in any calling is to be attained, and felt that the best in the union idea might be, and in fact was, demonstrated in the profession of medicine. He thanked God that " the baby that rocks in the cradle bears the union label of union made." Finally he spoke feelingly of the fact that the popular idea of trade unionism, as everywhere at the present time manifest, was in great measure erroneous; that the troubles and difficulties caused by unionism are exceptional, and that the vast number of differences and disputes amicably settled through their agency is wholly unknown. The exercises were concluded by the introduction of the new president, Dr. Arthur T. Cabot, who spoke briefly of the honor conferred upon him and begged the co-operation of the fellows of the society.

The meeting in general, like the long list of its predecessors, must be regarded as a decided success, not only in presenting certain medical matters of vital interest to practitioners, but also in encouraging that sense of fellowship for which such an association in great measure exists.

THE DEVELOPMENT OF THE PRIVATE HOSPITAL.

THE recent opening of the Corey Hill Hospital in Brookline is no doubt a forerunner of the development in this community of this type of private institution. For many years it has been evident, both in this and other large cities, that the public hospitals, constituted as they are, do not meet the requirements of all the sick. This is naturally due to the fact, in the first place, that our public institutions are designed, and rightly so, for the care of the poor who must be the subjects of charity. Private wards appended to such hospitals have no doubt proved themselves of value, but the demand has long since surpassed the supply, and further accommodations are imperatively required. In the second place, the prejuduce against going to a hospital for the treatment of various types of disease has apparently entirely disappeared, so that now people not only are willing to go, but prefer to do so rather than remain in their home surroundings, whatever their circumstances in life may be. Reasons for this are sufficiently obvious.

The Corey Hill Hospital is a private enterprise undertaken by fifteen physicians, chiefly surgeons of Boston, for the purpose of providing further accommodations for their patients. The hospital is not designed for the treatment of any one class in the community, but is rather intended to provide an abundance of fresh air, which, if hitherto obtainable in private hospitals in this city, has only been so in less degree, and the possibility, if necessity requires, of a long stay at the hospital. In fact, the treatment of certain chronic forms of disease was especially considered in the design of the hospital, although this naturally will not be its exclusive province.

The financial management of the institution has been placed in the hands of trustees, and it is neither expected nor desired that the investment will return a large rate of interest. The nursing is to be done wholly by women who have already had experience in other hospitals, and who will serve at this hospital for a period of from three to six months for the purpose of acquiring detailed knowledge of the treatment of the individual patient as seen rather under the conditions of a private house than of an institution. Accommodations have up to the present time been provided for upwards of thirty patients. The situation of the hospital is most salubrious, on the summit of a considerable eminence in the neighborhood of Boston; the equipment is

altogether attractive, and the operating facilities complete in every detail.

It is, of course, generally known that private hospitals have existed in this as in other cities for many years. They have arisen and flourished in direct response to the demand of the public as well as of physicians who see the desirability of hospital treatment for many of their private cases. These hospitals have fulfilled a valuable function under certain disadvantages, often of construction, and we see in this elaborate addition to the private hospitals of Boston simply a further step in the direction which has already been taken by less pretentious enterprises of a similar sort. In general, the movement is one which deserves encouragement. There can be no question that patients with many forms of disease may be better taken care of, and in the end more economically, at such specially constituted hospitals than at their own homes. Not many years ago the only variety of private hospital was that for the mentally disordered. Now there is hardly a type of disease which has not its special place of treatment. We are glad to see in this latest hospital that one of the distinct objects is the treatment of chronic forms of disease which have rarely hitherto found an adequate resting place.

EXTINCTION OF RABIES IN GREAT BRITAIN.

The practicability of stamping out an infectious disease in an insular community by preventive measures has been demonstrated by the Board of Agriculture of Great Britain, as shown in its recent report upon the diseases of animals.[1] Prior to 1897, power to make regulations imposing the muzzling of dogs was vested in the hands of the local authorities, and it was not until that year that the Board decided to take active measures for the suppression of rabies.

"Six years have now elapsed," says the report, "since a determined effort was made by the Board to extinguish this disease, and strange to say, some of the most ardent opponents to the measures adopted have been the owners of dogs. As the eradication of rabies was distinctly in the interest and for the benefit of all the dog owners in the country, one would have thought that any measure which would have had the effect of saving their animals from such a direful and fatal malady would have received the entire sympathy of that particular section of the community. But even at the risk of offending the minority of dog owners, it was worth while to make a bold attempt to exterminate a disease which, when communicated to the human being, produces what is generally admitted to be one of the most hideous and incurable diseases to which mankind is liable, — and happily the attempt has been attended with remarkable success."

An interesting table is presented, showing the number of deaths from hydrophobia in Great Britain since 1848. Deaths from this cause were registered every year until 1898. In 1874 there were 61; in 1877, 79; and in 1885, 60. But in the past five years there have been only two deaths reported from this cause, one of which was that of a military officer who was bitten by a dog when out of the country.

Among dogs, there were 672 cases of rabies reported in 1895, 438 in 1896, 151 in 1897; but in 1901 there was only one. "This diminution of hydrophobia," says the Board, "runs concurrently with the eradication of rabies in the dog, and has followed upon and is due to the measures adopted by the Board for stamping out rabies in the dog."

[1] Proceedings under the Diseases of Animals Acts, for the year 1903, London, 1904.

NEW BUILDINGS AT THE BOSTON CITY HOSPITAL.

We have already commented briefly on the fact of the opening of the new out-patient building and surgical wards at the Boston City Hospital, but lack of space has hitherto prevented a fuller statement of the significance of this new addition to the hospital. For many years there has been a growing necessity at this institution for a more adequate out-patient department, and the work of the physicians has been done under distinct disadvantages owing to the crowding and general lack of space. The new out-patient building will do much to obviate this condition of affairs.

The building is three stories in height, with two wings at right angles to each other, with the general entrance at the internal angle. The whole lower floor is given up to the male surgical department, the second floor to the surgery of women and children, and the third floor to special departments for the eye, ear and throat. Although the various rooms are not of great size, they certainly should be altogether adequate for meeting the contingency of the constantly growing clientele of this hospital. The general furnishing, wood work and appearance of the

various rooms is in excellent taste from the fact that the equipment fits the use to which it is to be put. Ornateness and elaborateness are neither attractive nor desirable in such a department of a hospital. Both of these defects have been admirably avoided in this building. The new surgical wards at the extreme western end of the hospital grounds occupy a building of three stories with fourteen ward rooms on each floor each accommodating two patients. A room of particular interest to visitors is one on the first floor in which has been collected pictures of surgeons and trustees connected with the institution since its dedication forty years ago. It is proposed finally to so alter the medical out-patient department that it will more fully meet modern requirements. With this further addition to the hospital buildings the out-patient department should be adequate for many years to come, although the phenomenal growth of this institution makes prophecy dangerous.

MEDICAL NOTES.

INTERNATIONAL TUBERCULOSIS CONGRESS. — The International Tuberculosis Congress began its session in Copenhagen May 27, under the presidency of Professor Brouardel of Paris. Delegates from many countries were present, the United States being represented by Dr. E. L. Trudeau of Saranac Lake.

BOVINE PLAGUE IN EGYPT. — In addition to bubonic plague it is reported, according to *American Medicine*, that bovine plague is very widespread in Egypt. Severe precautionary measures are being taken, but owing to the nomadic character of the population the results, it is said, are unsatisfactory as far as the cattle disease is concerned. According to reports Egypt is also menaced this year with an invasion of locusts. In certain districts the government has ordered the destruction of the eggs left by the clouds of these insects that have already made their visitation. Under the direction of experts sent out by the ministry of the interior almost the entire population of some sections of Egypt is engaged in destroying the eggs.

AMERICAN CLIMATOLOGICAL ASSOCIATION. — The American Climatological Association met at Philadelphia on June 2, 3, and 4, and Dr. J. C. Wilson of Philadelphia presided. The program included thirty papers. At the business session the following officers were elected for the ensuing year: President, Dr. W. F. R. Phillips, Washington, D. C.; 1st Vice-President, Dr. S. G. Bonney, Denver; 2d Vice-President, Dr. S. D. Risley, Philadelphia; Secretary and Treasurer, Dr. Guy Hinsdale, Hot Springs, Va. Member of the Council Dr. J. C. Wilson, Philadelphia; representative to the Executive Committee of the Congress of American Physicians and Surgeons, Dr. Frederick I. Knight, Boston. The place of meeting for 1905 was not decided.

WALTER REED MEMORIAL ASSOCIATION. — The Walter Reed Memorial Association has been incorporated under the laws of the District of Columbia to provide some special recognition for the scientific work of the late Maj. Walter Reed, U. S. A. The American Medical Association and the Association for the Advancement of Science have appointed committees to co-operate with this association, and it is desired that subscriptions to the fund in process of collection be handed to any member of these committees, or such contributions may be sent to Mr. Charles J. Bell, President of the American Security and Trust Company, Washington, D. C. It is thought that at least $25,000 should be raised, but the exact character of the memorial will not be determined until later. Chief dependence must be placed upon physicians in arousing interest in the general project by pointing out the far-reaching results of Major Reed's yellow fever investigations.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 8, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 72, scarlatina 14, typhoid fever 7, measles 125, smallpox 0.

THE JOHN W. PRAY PRIZE. — This prize, offered by the trustees of the New Hampshire State Medical Society for the best essay on a medical subject, was awarded at the recent meeting of the society to Dr. Frederick L. Hills, first assistant physician at the New Hampshire State Hospital, the title of the paper being "The Sanatorium for Incipient Pulmonary Tuberculosis; Its Aims, Methods and Results."

ANTHRAX IN LYNN. — The reappearance of anthrax in Lynn has led to a special meeting of the Board of Health for the purpose of considering means for checking the spread of the disease. Certain specially qualified persons are to be called to the aid of the Board of Health in providing for means to this end. It is thought that some special regulations for em-

ployees in morocco factories may be required, and the matter of isolation of patients also demands consideration. It is said that there have been eighteen cases in Lynn during the past three years, with a number of deaths. The latest victim is expected to recover.

NEW YORK.

Reception for Prof. Hoffa. — During the past week Prof. Albert Hoffa of Berlin has been the recipient of much attention, and among the entertainments given for him was a large reception by Dr. Reginald H. Sayer.

Bequests to Hospitals. — Among other charitable bequests made in the will of the late Charles Emmons are $500 each to the House of Rest for Consumptives at Mount Hope, Borough of the Bronx, and the Eastern District Hospital and Dispensary of Brooklyn.

Tuberculosis in Street-Cleaning Department. — By order of Dr. Woodbury, commissioner of street cleaning, a systematic medical examination has been commenced of the 6,000 sweepers in the employ of his department, for the purpose of ascertaining what percentage of the men are affected with tuberculosis. Out of 87 employees from the Second District, embracing the territory between Broadway and the East River, Chambers and Broome Streets, who were examined on June 3, the physicians in charge reported that they had found 11 cases. In 9 the disease was quiescent, while in two it was in an active stage.

The City Death-Rate. — With the advance of milder weather there has been a gradual diminution in the death-rate of the city, although it still remains very considerably higher than at the same time last year. The mortality during the month of May represented an annual death-rate of 21.70, as against 24.82 in April and 18.51 in May, 1903. The corrected death-rate, excluding non-residents and infants under one week old, was 20.79. The most marked decrease in fatality has been in pneumonia, from which the weekly average of deaths was 173.25, as against 244.75 in April. During the last week in May there were 115 deaths from it, while in the last week of April the deaths numbered 258, or more than twice as many. In broncho-pneumonia the decline was not so great, the weekly average of deaths from this disease being 101.25, as against 132.25 in April. Other diseases showing a decreased mortality were the following: The weekly average of deaths from diphtheria and croup declined from 60.25 to 47.25; from scarlet fever, from 29 to 25; from measles, from 41.5 to 38.75; from influenza, from 22 to 7.5; from acute bronchitis, from 44.5 to 39; from pulmonary tuberculosis, from 202.75 to 178.5; from Bright's disease and nephritis, from 135.5 to 126; and from organic heart diseases, from 114 to 102. Among the few diseases which showed an increased mortality were typhoid fever and cancer. The weekly average of deaths from the first increased from 6.25 to 10, and from the the second, from 48.25 to 53.25.

Obituary.

PROFESSOR WILHELM HIS.

Dr. Wilhelm His, professor of anatomy at the University of Leipzig, died May 1, after an illness entailing much suffering. By his death the medical profession loses one of its most brilliant and productive members. He was born at Basle in 1831, and studied medicine successively in Basle, Berne, Berlin, and Würzburg. During his stay in Berlin he came under the instruction of Johannes Müller and Remak from whom he acquired the rudiments of anatomy and embryology which later he developed in such remarkable degree. At Würzburg he came under the observation of Virchow and worked in his laboratory. Later he went to Paris and studied under Claude Bernard and Brown-Séquard.

At the age of twenty-six, through the promotion of Meissner, he became professor of anatomy and physiology at Berne, his birthplace. He remained at the University of Basle until 1872 and then went to the University of Leipzig as professor of anatomy and director of the anatomical laboratory, succeeding Prof. E. H. Weber. During many years of his stay in Leipzig he was very intimate with Professor Braune who became professor of topographical anatomy at the university. As a writer and contributor to scientific literature he was active throughout his professional career, contributing papers to nearly every department of anatomical knowledge and creating for himself the highest possible position as an embryologist; in fact, he may with justice be said to have been the most influential man in the development of modern embryological theory. His researches on the nervous system, and what he regarded as the developmental evidence for the neurone theory are matters of common knowledge. His work on the anatomy of human embryos formed the basis of much of the subsequent study of this subject. The death of Professor His removes another of that most eminent group of German scientists of a former generation, and he may with justice be placed in the same category with Helmholz, Virchow and du Bois Reymond, who have all died within the past decade.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, MAY 28, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Typhoid Fever.
New York . .	3,908,644	1,517	472	28.34	15.68	3.23	.59	.92
Chicago . . .	2,021,086	437	116	22.80	12.54	1.60	.45	.91
Philadelphia	1,407,968	494	131	26.12	14.15	1.82	—	4.45
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	194	48	24.74	9.79	—	—	1.54
Cleveland . .	444,231	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	119	—	30.25	15.96	3.36	—	8.40
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	62	14	32.26	9.67	1.61	—	1.61
Boston . . .	617,950	174	41	16.09	16.09	—	1.14	.57
Worcester . .	136,925	22	7	—	9.09	—	—	—
Fall River . .	119,849	27	11	29.62	18.51	—	—	3.70
Lowell . . .	104,402	31	7	16.13	16.13	3.22	—	—
Cambridge .	100,998	21	5	35.33	4.76	—	—	—
Lynn	73,875	16	3	12.50	—	—	—	6.25
Lawrence . .	72,848	10	6	10.00	30.00	—	—	—
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	13	3	7.70	7.70	—	—	—
New Bedford	68,863	22	7	13.63	—	—	—	4.54
Holyoke . . .	50,538	12	3	33.33	16.67	—	—	—
Brockton . .	46,601	7	1	42.90	—	—	—	14.30
Newton . . .	39,310	9	2	11.11	—	—	—	11.11
Haverhill . .	39,061	9	2	11.11	33.33	—	—	—
Malden . . .	37,205	5	1	20.00	20.00	—	—	—
Salem	37,188	7	2	—	28.60	—	—	—
Chelsea . . .	36,499	15	1	13.33	—	—	—	—
Fitchburg . .	36,335	6	1	—	16.67	—	—	—
Taunton . . .	34,577	—	—	—	—	—	—	—
Everett . . .	30,209	8	2	25.00	—	—	—	—
North Adams	29,201	4	1	25.00	—	—	—	12.50
Quincy . . .	26,798	5	3	—	40.00	—	—	—
Gloucester .	26,131	—	—	—	—	—	—	—
Waltham . .	25,797	0	—	—	—	—	—	—
Brookline . .	25,576	4	—	—	—	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,956	4	—	25.00	—	—	—	—
Chicopee . .	21,692	5	1	20.00	—	—	—	—
Northampton	20,314	11	2	18.18	—	—	—	—
Beverly . . .	15,807	5	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	0	—	—	—	—	—
Adams . . .	14,745	3	—	66.67	—	33.33	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	—	—	—	—	—	—	—
Newburyport	14,478	9	2	11.11	11.11	—	—	—
Woburn . . .	14,315	3	—	—	33.33	—	—	—
Melrose . . .	13,819	3	—	—	—	—	—	—
Westfield . .	13,809	2	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	4	0	25.00	25.00	—	—	—
Revere . . .	13,009	3	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	5	4	60.00	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	1	0	—	—	—	—	—
Weymouth .	11,350	3	1	33.33	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,314; under five years of age, 900; principal infectious diseases (smallpox, measles, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 850; acute lung diseases 468, consumption 375, scarlet fever 46, whooping cough 7, cerebro-spinal meningitis 85, smallpox 4, erysipelas 13, puerperal fever 20, measles 44, typhoid fever 60, diarrheal diseases 120, diphtheria and croup 77.

From whooping cough, New York 2, Chicago 2, Baltimore 1, Pittsburg 1. From smallpox, Philadelphia 2, Baltimore 1, Pittsburg 1. From cerebro-spinal meningitis, New York 80, Pittsburg 1, Providence 1, Boston 1, Gardner 2. From erysipelas, New York 9, Chicago 2, Boston 2. From typhoid fever, New York 14, Chicago 4, Philadelphia 22, Baltimore 3, Pittsburg 10, Providence 1, Boston 1, Fall River 1, Lynn 1, Brockton 1, Newton 1, North Adams 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending May 14, the death-rate was 16.1. Deaths reported 4,705; acute diseases of the respiratory organs (London) 116, whooping cough 193, diphtheria 58, measles 181, smallpox 6, scarlet fever 30.

The death-rate ranged from 6.0 in Smethwick, to 24.0 in Warrington; London 16.3, West Ham 14.5, Brighton 14.9, Southampton 14.4, Plymouth 13.7, Bristol 14.0, Birmingham 22.0, Leicester 12.1, Nottingham 14.7, Liverpool 17.2, Bolton 17.8, Manchester 21.3, Salford 17.8, Bradford 17.9, Leeds 16.6, Hull 17.5, Cardiff 17.4, Rhondda 17.1, Wigan 17.4, Merthyr Tydfil 10.8, St. Helens 13.0.

METEOROLOGICAL RECORD.

For the week ending May 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 22	29.96	68	81	56	62	57	60	S W	S W	10	14	C.	C.	0
M. 23	29.98	67	78	56	61	59	60	S W	S W	13	15	C.	C.	0
T. . 24	29.98	72	85	60	73	48	60	S W	W	14	8	C.	F.	.01
W . 25	30.12	66	72	60	49	100	74	E	N W	7	9	C.	R.	.19
T. . 26	29.87	77	87	67	71	65	68	S W	S W	6	12	C.	O.	.03
F. . 27	29.74	70	72	57	77	58	68	S W	W	14	12	O.	C.	.31
S. . 28	30.02	64	75	52	54	43	48	N W	W	12	9	C.	C.	0
☞	29.95		79	58			63							.54

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 4, 1904.

I. W. KITE, surgeon. Detached from the "Maine" and ordered to the naval hospital, Pensacola, Fla., for treatment.

A. M. FAUNTLEROY, assistant surgeon. Detached from the "Scorpion" and ordered home and to await orders.

R. R. RICHARDSON, assistant surgeon. Detached from the naval hospital, Pensacola, Fla., and ordered home and to await orders.

J. L. TAYLOR, acting assistant surgeon. Detached from duty with naval recruiting party No. 6, May 28, and ordered to duty at the naval hospital, Pensacola, Fla.

F. A. RICHARDSON, acting assistant surgeon. Detached from the naval hospital, Newport, R. I., and ordered to the "Scorpion," June 2.

J. F. MURPHY, assistant surgeon. Detached from the "Isla de Cuba" and ordered home and to wait orders.

W. D. OWENS, assistant surgeon. Ordered to the naval hospital, Newport, R. I.

BOOKS AND PAMPHLETS RECEIVED.

The Elements of Kellgren's Manual Treatment. By Edgar F. Cyriax, M.D., Edinburgh. Illustrated. New York: William Wood & Co. 1904.

Railway and Other Accidents with Relation to Injury and Disease of the Nervous System. A Book for Court Use. By Allan McLane Hamilton, M.D., F.R.S.E. Illustrated. New York: William Wood & Co. 1904.

Lectures on Clinical Psychiatry. By Dr. Emil Kraepelin. Authorized translation from the German. Revised and edited by Thomas Johnstone, M.D., Edin., M.R.C.P. (Lond.). New York: William Wood & Co. 1904.

Torticollis and Spinal Curvature due to Eyestrain. By George M. Gould, M.D. Reprint.

The History and Etiology of "Migraine." By George M. Gould, M.D. Reprint.

Medical Discoveries by the Non-Medical. By George M. Gould, M.D. Reprint.

The Nonoperative Relief of Eyestrain for the Possible Cure of Epilepsy as tested in sixty-eight cases at the Craig Colony. By William P. Spratling, M.D. Reprint.

Pervigilium, or Long Periods of Physiologic Wakefulness. By George M. Gould, M.D. Reprint.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. I. 1904.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noordin. Authorized American Edition translated under the direction of Boardman Reed, M.D. Part V. New York: E. B. Treat & Co. 1904.

The Life-Study of Patients, or the Biographic and Multiple Biographic Method of Discovering Medical Truth. By George M. Gould, M.D. Reprint.

Addresses.

SOME ASPECT OF MEDICAL EDUCATION.[1]

BY JOHN H. MUSSER, M.D., PHILADELPHIA, PA.

It is no trifling occasion that draws together from the uttermost parts of the country one fifth of an organization of a profession that is taxed to its utmost in the prosecution of its duties. It is not with sounding trumpets and tinkling cymbals that from the sorrowing bedside,— whether in the hovel of the poor or the palace of the rich,— from the excitement of the operating room, from the stimulus of the hospital ward, or the quiet, but inspiring haunts of the laboratory, this assembly gathers. That it is possible is a handsome tribute to the noble animus in which are embodied a spirit of inquiry, a thirst for knowledge, a longing for inspiration, a desire to uplift and to be uplifted that pervades the profession. The event is one that should be fraught with the dignity, the inspiration, one might almost say solemnity, befitting a symphonal march. For such animus, fellow members, we have just cause for self-congratulation.

It scarcely need be reiterated here that the spirit which pervades such a meeting is the outcome of that evolution which began with the introduction of precision in medicine. Just as soon as the art of medicine had for its foundation the science of medicine, the possibility of harmonious medical organization arose. When "rule of thumb" or intuition gave way to precision; idealism to realism; when speculation was displaced by fact; when, in short, inductive methods were employed and honest inquiry became the guiding star of action, then harmony could sit in council.

With medical, as with all organizations made up of human elements, it would be only human if not pervaded by the essence of science — truth. Hence with the latter wanting, jealousies and ambitions, self and selfishness, would prevail to the end that the true object of organization — a fraternal spirit and conscientious seeking for truth — would be as a flickering flame. A little observation will show that that society, whether county, state or national, that does not have this true reason for its existence, for its guide of action, will be a failure. The reverse is also true that that organization which may be called unsuccessful and unhappy, of snarling men and backbiting colleagues, can be labeled at once as without its true vocation, to the discredit of its members.

The great heights to which our organization is rising rapidly precludes the activities of such as have self for their basis of action, so that each day we see more and more a noble rivalry of its members to do the utmost and the best for the organization; a healthful vying of one another for its welfare. Self and selfishness are looked at askance; partisanship and faction, save for a common end — the welfare of the association — are memories.

But, fellow members of the Association, at this the fifty-fifth session of our Association we have other causes for congratulation and felicitation. We are on the eve of a union of all the members of the profession in one harmonious organization, each individual of which is willing and proud to consider his fellow a gentleman until he is proved not to be, and not, as of yore, a knave until he is proved to be a saint. We are reaping the rewards of that untiring committee which gave to us this organization with which we now labor. We are prospering beyond measure, and gathering a force scarcely to be estimated, in great part as a result of the untiring efforts of the apostle of organization — our McCormack. To say that thirty-four states have adopted the uniform plan of organization, and "that membership in the reorganized states has increased 400%, and enthusiasm," writes our coadjutor, "tenfold more," is enough. We are standing out in our own manliness with the majesty that belongs thereto because of the sentiments expressed when our broadly inspired committee voiced the unanimity of feeling which belonged to the Association, in our principles of ethics. We are letting our light shine through the instrumentality of that genius of medical editors — our Simmons. From five thousand to twenty thousand in less than a decade is a statement of circulation which appals and at the same time arouses a feeling of pride and stimulates to further effort, increased all the more when we reflect that the scientific value of the articles in *The Journal* are surpassed by none of its contemporaries; its tone is emulated by all.

Such causes for congratulation bring to this association greater responsibilities and weightier problems for solution. It is held to be the bounds of this address to indicate responsibilities, some trite and apparently trifling, others most weighty; to point out duties, many so grave and vast, beyond the powers of your official to justly define.

NECROLOGY.

Before passing to the task, let us pause a moment and with due reverence take cognizance of our colleagues who have, since our last meeting, gone to the great majority. The Silent Reaper has been as rapacious as in the past, and more than fifteen hundred fell in his swath. He has spared neither the humble nor the great. The less conspicuous but just as potent laborers in the vineyard can say with the others: "I have fought a good fight, I have finished my course, I have kept the faith."

Of those who have been honored by this association in the past, we lost two ex-presidents, the hearty, rugged, yet withal gentle and kindly Donald MacLean, surgeon and teacher, and the urbane James Farquhar Hibbard, a revered general practitioner and teacher; two ex-vice-presidents in John Bates Johnson, one of the

[1] President's address at the fifty-fifth annual session of the American Medical Association at Atlantic City, June 7-10, 1904. By courtesy of the Journal of the American Medical Association.

founders of the Association, a great practitioner, an honored teacher, and Isaac Newton Love, genial and magnetic. From the ranks we lost Edmund Andrews, scientist, pioneer in surgery and medical education in the West; George Julius Englemann, obstetrician, scientist, litterateur, teacher, honored at home and abroad by membership in great organizations; James McFadden Gaston, pioneer in the surgical treatment of affections of the gall bladder and gall ducts, an esteemed practitioner; Franklin Staples, Hamilton Atchison West, Orpheus Everts, each obtained prominence and respect by force of character and natural attainments; Emile A. de Schweinitz, scientist and brilliant investigator, laboring not for his own renown but for that of his profession, passing away at the threshold of a most promising career; Frank Savary Pearce, untiring and enthusiastic, who had been expected to counsel with us this week.

HOUSE OF DELEGATES.

The conduct of business under the new constitution bodes success. The two years of trial have indicated that to the House of Delegates the greatest responsibilities fall. When its members consider the great power the American Medical Association will have for weal or woe in the future and that the great body gives that power almost unstintingly to the delegates, they should justly realize the honor and confidence bestowed on them. With such realization will come honest purpose and deliberate action. All the county and state organizations must appreciate the vast duties to be undertaken, and the breadth of view, deliberation and wisdom essential to their correct performance, and consequently select from their number the best of their possessions. Let us as an organization see to it that honor and homage come to those who labor unceasingly in the House of Delegates.

NATIONAL LIFE.

It can be readily seen that an organization of the magnitude and with the object and the spirit of our Association must, in justice to itself and duty to its country, take part in its social and political life. In order that we can be in touch with such life it would be well for the Association to devote some time to the discussion of broad general topics. We have provided for discussions at this meeting, the advisability of which may be termed tentative. We feel they can be productive of great good, and if the experience on this occasion is the least encouraging, we would urge their continuance. We had hoped to have government officials take up matters pertaining to the relation of the medical profession to the executive, legislative and administrative departments of the government. The exigencies of politics forbade our obtaining the services of those worthy to address this body. All men of political affairs are too busy at this junction. At other times we may learn with profit from our rulers and law makers. As arranged for this week, so in various parts of the country in which the meetings are held, broad topics of general interest, perhaps with local flavor, could be discussed. From those in the far West we might learn much of climate or how to conquer the plague or the medical aspect of "the yellow peril." The good judgment of the committee or the president can be relied on to select topics suitable to the occasion.

It is needless to refer to the demands that will be made on us by the nation in the future. You will learn through the representatives of the army, the navy and the marine-hospital service what is expected of us. My distinguished predecessors, Reed, Keen and others, have pointed out our possibilities for good in the legislative halls of county, state and nation. We must have care never to be partisan or factional toward the weighty matters we will have to decide. We must realize that the power we have may be our undoing. We must realize that we are entering on dangerous ground and that it would better become us to be bidden rather than to intrude ourselves into such territory. Indeed, one may tremble not a little at the possibilities of our development in the wrong direction. So long, however, as we hold true to the spirit which comes out of devotion to science we need not fear.

THE SECTIONS.

The work in most of the sections the past few years bears favorable comparison with that of co-ordinated organizations throughout the country. To inflict discussion concerning them on this general meeting is, we realize, somewhat of a hardship. Your indulgence is craved, however, for through your medium alone can the sections be reached, while peradventure the work of these sections is fully as important as that of any branch of our Association work. If you will look into it you will find the rise of the Association came with the development of section work. To enhance the value of such work is, therefore, to uplift the organization. The present methods are worthy of trial for a few years, just as we should not make haste in changing the new constitution. Regarding it, may we suggest thought along these lines?

(1) The continuance of the secretary for a term of years.

(2) The collaboration of sections so that one topic can be exhaustively considered at the meeting of the Association without repetition in other sections. For this purpose the officers of the section should meet for consultation six or eight months before the annual meeting. We feel we did good work by having our distinguished chairman and secretaries come together last October.

(3) The division of the Association into two main sections for work in the mornings, that of (*a*) *medicine*, including pathology, diseases of children, nervous and mental diseases, materia medica, stomatology, cutaneous medicine and sanitary science; (*b*) *surgery*, including obstetrics, gynecology and the more closely related surgical

specialties. The members interested in diseases of the eye or nose or throat could contribute to either section the result of any studies related to the respective section. The afternoons could be occupied by the specialized labor of the twelve sections now in existence.

Perhaps it might be thought better to have one morning, at the direction of the Section on Practice of Medicine, devoted to the discussion of general topics related to medicine, in which the entire Association could take part; another morning, at the direction of its secretary, to surgery; a third to the specialties; a fourth to sanitary science. The object is to secure the views of physician, surgeon and specialist on general topics. To instance as a subject, endarteritis, is to call up at once the possibilities for the internist, the surgeon and the specialist.

(4) The sections should take up and organize special international congresses when the time is ripe for such meetings. Thus an International Congress of Dermatology could be managed by the correlated section of this Association. With the patronage of the American Medical Association any congress that could command such special energies and broad general support could not fail.

(5) The section should name to the president a list of its members from which he could select, when asked, delegates to important national meetings or international congresses.

SANITARY SCIENCE.

The Section on Hygiene and Sanitary Science should receive greater support from the organization. It is the section which must bring us in closer touch with our national life. Through it and those devoted to it we ought to secure greater respect from the body politic, and hence more wholesome power for the welfare of the community. Through it the profession should learn to take greater interest in the work of sanitary officers throughout the country. The valuable address of Billings on "The Relation of Medical Science to Commerce" and that of Thompson on "The Economic Value of Medical Science" indicate the opportunities and responsibilities of the profession. The time has gone by when sanitary positions should be used for temporary sources of income and obtained by political means. Such offices are growing more and more vital to the public welfare. They have not been attractive because the rewards have not been commensurate with the responsibility and the labor demanded. They should, we will admit, if looked at from the proper view-point, grant large compensation, and the occupant should be guaranteed tenure of office, not subject to party exigencies, but dependent on value received. The fault is partly ours that such is not the case. In but few medical schools is there a serious attempt to educate sanitarians, consequently the physicians who engage in sanitary science in an amateurish way do not give a *quid pro quo*. It does not pay a community to hire them. In one of the large cities of this country it has been impossible for the health authorities to get men who are competent to take up health matters, even though the city was prepared to pay fair salaries. Speculation need not run riot in estimating what would occur in a few years if our universities would give sound practical courses of a broad character, including some engineering, some economics and other features which would round out the man. In preliminary and subsequently in the elective studies the student should not be tempted to go into the special lines of practice. He should have opportunity to go in for sanitary science, and perhaps for government service in the army, the navy, or other departments. The communities would soon find the worth of men thus educated, and the demand, we would venture to predict, would outrun the supply. In proof of the former, we may cite the fine tribute given to Wende of Buffalo, by the citizens, *en masse* and of one accord, for the work of self-sacrifice, of unselfishness and of worth as official of the health department. Our association could as a body and in its constituent parts encourage the medical schools to make such training possible; they could educate the community to demand such services and insist that good compensation is to be allotted for it. The Section on Sanitary Science could take up this as one feature of their work.

But for a more grievous reason, the profession's attitude, there is public disrespect. Survival of the old dictum that a patient's woes are confidential, supports too often the attending physician in failing to realize his responsibility to the community while attending to the welfare of his client. For this, as well as too often for personal reasons, he readily connives with the patient to thwart civic authority, thereby endangering a community. Instead of aiding in securing respect for and obedience to the rules of his sanitary colleague he joins in opposing him. Candor must compel us to admit that too often he fears the advent of the health official may mean some disclosure of his own incapacity. It is fair to say the official on his part is often too ready to give advice, to sneer at diagnosis or rail at treatment. To inspire, therefore, wholesome respect toward these coworkers and establish an *esprit de corps* should be one of the educational prerogatives of this section. Were we to be called to account for duties undone, the sin of not fulfilling our obligation to the community in sanitary matters would doubtless be found the most conspicuous, the one most detrimental to its interests.

Again, if not too insistent, could not this section further educational exhibits in sanitary matters not unlike the superb exhibit last winter in Baltimore, conceived and conducted in the main by our present official of the Sanitary Section? The Association could not do better than issue a grant for the furtherance of this object.

THE SCIENTIFIC EXHIBIT.

It is gratifying to see the interest and success attendant on this new feature of section work. It is another tribute to the belief in the permanent

tenure of office of an official when we have the good fortune to get a good one. Attention is particularly called to this exhibit to ask the Association and the other sections to look to the conduct of somewhat similar exhibits. The Section on Ophthalmology showed the possibilities at the time of the Helmholtz anniversaries. When a section takes up a subject let us not have the clinical, pathologic and therapeutic aspects alone discussed, but bibliographic and historic features brought out. Let such features be as national as possible. What a fine exhibition it would be to have in connection with, say typhoid fever, a loan collection of the pictures of authors and investigators, of the various editions of their works and of the material things with which they worked, illustrating the evolution of their knowledge of the subject. Who would not be thrilled by a picture of the wards of the old Pennsylvania Hospital where Gerhard worked, of the instruments or materials he worked with, how he lived and what he did, of the first editions of his works, indeed of the manuscript of them? We must confess to a quiver of delight, mingled with reverence, when permitted to handle the manuscript on which Stillé inscribed his communication to the Paris Society. This is not the time or place to indulge in a homily on the value of such exhibits, agreeable though it might be. Through them, as of biography and sculpture and painting, we keep in touch with our history. Foster efforts in these directions, gentlemen of the Association, grant liberally to sections their small demands on you, to the end that you will be stimulating the best instincts in our profession.

THE ASSOCIATION OF LIBRARIANS.

We are not far amiss when we call attention to an organization which in a quiet, unobtrusive way is bringing together the members of the profession on a common ground, where tares do not spring up and thistles do not blossom, but, instead, in an atmosphere clear, refreshing, invigorating. Jealousies do not thrive in libraries; books soften ambitions. No stronger, more liberal friendships can develop than those that come to book lovers. We owe a debt of gratitude to the Library Association and to its distinguished president, under whose fostering care the influence and power of the Association is unfolding as the hardy rose, exhaling like it a fragrance which cheers and stimulates. Of the many abundant works we owe him, none, we venture, will be more satisfying to him and more lasting for good than the work of the Association of Librarians. This Association should hold not its hand nor stint its heart in upholding its educational efforts.

THE RUSH MONUMENT.

Before this session adjourns, by proper ceremony, graced by the presence of the President of the United States, with an oration befitting the occasion by our distinguished colleague, Dr. Wilson, the monument erected by the Association to the memory of Benjamin Rush will be dedicated. The Association is to be congratulated on the completion of this tribute in perpetual bronze to one of the most distinguished of our countrymen. Not alone should we rejoice on the fruition of this agreeable task, but also because it augurs for the erection in the future of tributes to the memory of others full worthy of our reverence. The invigorating, stimulating influence that comes from having about us our heroes of the past in stone or bronze behooves this Association and its constituent bodies to strain every effort to encourage in this manner hero worship. It is due ourselves to perpetuate the inspirations, the thoughts, the feelings, in the counterfeit presentment of our fellows. We are not of those who decry the world because it has not recognized our Jenner, our Pasteur, our innumerable heroes either by reward in their life time or by permanent tribute. We do not begrudge the mead of praise and the plenteous bounty which flows to our warriors and statesmen. It is true their glory has been attained often by carnage, lives sacrificed to avenge some insult. It was not life that was at stake. It was principle or thought or feeling or, our misanthrope suggests, greed. What countless lives are sacrificed for aspirations; what thousands of innocents for national gain! So, to the actors who stand for such, unstinted regard is given. The public neither appreciates the loss nor the saving of life. Hence, so long as it does not come close to them, civic murders from bad hygienic conditions do not move them. Even when home is devastated they submit to that which they consider mystifying or providential, and merely go their way. They are callous beyond measure to the presence of epidemics. They do not consider for one moment the power they have to assuage the virulence or even wipe out the existence of pestilence. Every effort for amelioration, as we see in tuberculosis, comes from our profession. With such lack of appreciation of their own welfare we need not expect much appreciation from them of our efforts.

In all honesty we must admit, among ourselves, we may not deserve public appreciation. If we realize the truth we may make amends. Could the public be expected to revere and respect when, as usual in the past, perhaps too common now, the profession was divided against itself, not from principle but generally because of pocket, of sordid ambition, of devouring jealousy? Look ye to your county societies! Do the brethren dwell together in harmony? Go to the warfaring court rooms! Do we emerge from them respected and respectful of one another? Until such sores are healed, as they happily will be, when science — and hence liberality of mind and largeness of heart — is furthered by associations like ours, it must remain to us a cherished heritage and privilege to worship our heroes alone. When we learn to respect ourselves, then will we be respected.

MEDICAL EDUCATION.

"An object of this Association shall be the elevation of the standard of Medical Education."

This Association has been, should be, and we trust will be, the storm center of legislation for reform in medical education. Since the memorable editorials of Wood in the old Philadelphia *Times*, and the masterly papers and addresses of Pepper and the practical action of the University of Pennsylvania there has been virile progress. In most respects it seems definitely settled as to the course of education a candidate for the degree of medicine should take. Questions of pedagogy are still debatable, but we take it that that student who wishes the quickest returns, the most lasting remuneration, perennial stimulation of the intellect and continuous enjoyment in the pursuit of his labors, should take a college education of three or four years, a four years' course in medicine and, if possible, a hospital interneship.

Reference need only be made to the reports to this Association, to the famous report of the majority committee of the Association of American Medical Colleges, to the numbers of *The Journal* comprehensively devoted to education, and to many recent admirable addresses in support of the statements.

There is talk about maximum and minimum requirements, about laboratory and hospital courses, the merits of didactic and clinical teaching — a mass of material brought forth from the view-point of the educator, or looking to the welfare of the medical profession. We do not minimize the value of such lines of discussion. It has brought us to the position we have attained. But what of the medical student? Should we not look at education from his point of view? Is he quite able to decide whether he should take up the profession of medicine? We hold that a great duty is due the aspirant for medical honors from teacher and practitioner. It is a kindness due him to point out the best methods of securing such education as will yield him results commensurate with the time and expense required. It would be a greater kindness to be enabled to show him that by reason of intellectual temperament or of physical or moral qualities he is not likely to reap the rewards he is anticipating.

The large majority of medical students do not have a good reason for studying medicine. They are ignorant of the mental and physical demands made on them. They are attracted by an uncertain glamor and a specious glory, and heedlessly they go in. The failure of a large percentage of graduates in medicine to acquire more than a bare existence, and too often not even that, proves that they were not educated properly, not fitted temperamentally or physically, to pursue its duties. Should they not have opportunity for learning of the responsibilities and difficulties, rather than to have the brighter phases glorified? Would it not be well to have, in our college curriculum, a course of lectures for the student who contemplates entering a profession, pointing out the rocks and shoals in his prospective career? An eminent practitioner, not connected with medical schools, would light up and darken the pathway in due proportions. Then, too, should not, as in the army and navy, some physical tests be required? The trophy is to the robust, and sad will be the career of the man who is physically handicapped.

If there is any doubt about the value of a college degree to a man entering the medical profession it could be set at naught since the report of the Mosely Education Commission. Quotations like the following, while not pertaining to medicine alone, the result of extensive inquiry and mature deliberation, supported by the statistics they give, uphold the contention of a large employer, that "for 99 per cent of the non-university men, it is hopeless to expect to get to the top." One opinion they express is that "there is still room for the boy of marked ability 'to come through,' but that his difficulties are greatly increasing, and that, useful as he is, his usefulness would have been greatly enhanced had he had the benefit of a college training." Still another commissioner reports that while only "1 per cent of the entire population of America has received a higher education in her colleges and universities, this 1 per cent holds more than 40 per cent of all positions of confidence, of trust and of profit." It is well known that the "geist" of the individual brings success, for which, they say, "it is recognized that the educated man takes in a wide horizon and puts more 'soul' into his work."

The essential of success in any department is diagnosis, which requires powers of intellectual penetration and discrimination. President Thwing has again forcefully urged that "the reasoning of the mathematics — and mathematics is only reasoning — tends to promote *clearness* and *accuracy in perception, inevitableness in inference*, a sense of logical *orderliness*. The study of the languages represents the element of *interpretation*. The study of history means the interpretation of life." Are these not the main studies of a college education? While they may promote scholarship, they surely cultivate thought. It need scarcely be pointed out to this audience that to be a thinker is the salvation of the physician.

To the plea that the acquirement of a college degree takes up too much time and requires too much money, the material answer can be given from other sources to the effect that "the men whom you are surprised to find holding such important positions in factories, though not much over thirty years, are the very men who did not leave the technical college till they were twenty-three or twenty-four; the graduate may have been twenty-five before he donned a jumper, but in five years he learned more with the college training he had as a foundation than the regular journeyman of fifteen years of actual work in the shop." The experience of teachers who have watched the alumni agrees in that the

college graduates get quick returns and soon acquire a position of independence.

The poor boy, therefore, need not be deterred, for if he has the spirit and energy to work his way through four years, two years or three years more will be but very little in the final summing up. If the student only knew that the purchase of the best education, whether reckoned in time or money, was the most economical investment, in that as to the former, a thorough education at first is time-saving in later years, and as to the latter, the money outlay is returned more quickly, in more immediate work and larger pay.

There should be one educational requirement — the equivalent of that for which a first-class college degree stands, whether received at a high school or university.

After entering the medical school with, it is presumed, the proper educational attainments, his career the first year should be closely watched. That school has too many students if it does not have enough instructors in the first year to be able to judge with a reasonable degree of accuracy of the character and moral stability of the men. This is not to be taken in a prudish sense or with too critical a scrutiny of habits which are the overflow of the animal spirits or the expiring exuberance of the boy approaching manhood. This can be said, that a student who does not play fair in his exercises, who cheats in one demonstration or evades another, who does not show manliness, frankness and truthfulness in his first-year duties, will not be a good diagnostician. He will cheat himself; he will cheat his patient. The teachers of the first year, or at least the second, should know this and block the student there and then. It would be a kindness. Let us then agitate whether we should not have a certificate of manliness, a certificate of health, as well as a certificate of mental proficiency, before we admit students to our medical schools or permit them to go beyond the first year. Let us not be decoys, alluring them on to later destruction, but rather be guardians, wrapping the strong arm of experience about them to lead them to the fitting pathway.

Having permitted the student to pass further in his pursuits, we still owe him much. We must see to it that such course is given him the first two years of his student career that he will acquire such fondness for the science of medicine, such reverence for the exploration of its truths, that until his dying day devotion to it will be his stimulus and solace. As a corollary, we must insist that medical schools secure the best men in the market for these places and pay them salaries commensurate with their ability — good, living salaries.

It is in the first and second years of his career that the foundations are laid whereby the student becomes the medical thinker. To quote again: "The power of thinking should not be of a base and barren character. The thinking should represent and be concerned with a fine and rich content of knowledge. It should have the exactness of intellectual discrimination; it should have the fullness of noble scholarship; it should embody a culture which is at once emotional and esthetic and ethical, as well as intellectual."

That a desire to relieve suffering, to extend sympathy, to save life, is the impulse of the physician, we all admit, but where is the man among us who will not also admit that a scientific habit more quickly brings it about and more surely sustains and fortifies the humane instinct through the trials and tribulations of exacting practice? That prosecution of professional duties soon becomes commercial that does not have for its basis a true spirit of scientific inquiry. How miserable must that life be which conducts an exacting, drudging, daily routine with only material reward in view. Few are the practitioners who have this sordid view; we can be as sure medicine would soon be forsaken if this view-point alone were considered. Hence, in the laboratory of the first two years must be aroused and fostered the stimulus for life work.

The final years should be clinical years, and the last should be in a hospital. The medical school that allows its students to think such opportunity is not due them is most unfair to them. As our schools are now constituted, most of them cannot give such requirements. The students should know, however, such requirement is necessary. What has been said regarding the preliminary college education applies equally forcefully to the hospital training. He is thrice armed who enters the arena thus equipped. Medical schools that cannot give such education are cruelly unkind and unjust to the students by having them think it is not essential. Medical colleges that pass off a hospital training for one that is not truly such fake their students. The student who pays well for his training has the right to demand such as to fit him for immediate action.

It is not the fault of the medical school alone that he cannot get it. The public that cries out when there is mistake in diagnosis, fault in treatment, and that shakes its head at the deficient education of our students, must share the blame with the medical school. The public admits that its individual members may at any moment be almost at the mercy of a half-educated physician. It is not necessary to recount, for it is well known, how on land or sea, by day or night, some event may arise in an individual life, the care of which may mean life or death. Even with this knowledge they withhold means to relieve themselves. They admit the necessity of a hospital training. But they, and particularly the public in control of hospitals not used for teaching, say each medical college should have its teaching hospital. They do not appreciate that to give an education which involves a hospital course would require an expenditure to $500 a year for four years by each student. It has been estimated that the cost of maintaining a plant and paying salaries sufficiently large to accommodate 600 students would require the above outlay by each student. Unfortunately,

it is impossible to expect students to pay such figures, as it would render entrance into the profession almost prohibitive. It is manifestly impossible, as medical schools are constituted now, to educate all the students of the land properly. Hospital training cannot be given except by a few favored institutions, because the doors of hospitals are closed either by the governing body of the hospital or by the teachers in the medical schools.

We believe, personally, if a decree should be issued that no medical school, including its hospital, should exist except on the fees derived from students, but little hardship would follow. The lessened supply of students would increase the demands on the practitioner, so that larger returns would follow. The poor student would sacrifice and strive to get a degree, knowing then he had a good asset. A diminution in number and an increase in quality is demanded alike by the public and the profession. Such diminution in number would mean that the student would get back his investment quicker and in larger amount than at present; hence good men would be attracted. If we could abolish sentiment for sense and educate accordingly, there might be betterment all around. At it is now, medical students receive part of their education through the bounty of the state or the charity of the public, as such education can only be given in endowed institutions. The public is taxed so that the prospective physician can make a living. Is it right that it should be? Perhaps a mechanic should demand such right to make his son a good workman. We must all admit it is the duty of the state to educate the youth, so that good citizenship is maintained; we can question whether the state should educate the members to obtain a livelihood.

With the same indifference that the public views an epidemic's march they allow hospitals that are engaged in teaching to suffer for the want of funds. Moreover, they close their doors to the advent of teaching in the hospitals under their control. We must admit, those who do not appreciate the true function of a hospital have some ground for their contention. Ruled by sentiment chiefly, unfortunately an impracticable master, they sympathize with the patient who still harbors the belief of old that the medical student is one of a class that prowl about not unlike harpies. The public does not realize the difference in the student of to-day and the student of tradition. We cannot hold to account the governing body of the hospital who has the point of view that it is harmful to a sick person to have him under the surveillance of an alleged student rabble. We must admit, some patients become alarmed, particularly in institutions where they know they will have the sympathy of the government body. An analysis of motive will show that the usual patient who will not allow a judicious amount of clinical demonstration when the sense of delicacy is not offended, is truly selfish, in that there is prevented that increase of knowledge and development of skill whereby suffering of others may be alleviated. A little encouragement from the officials would allay alarm on the part of the patient. The desire to help others is infectious, and when one yields in a word, others vie in the work.

The truth of the matter is that in hospitals in which teaching is carried on, rarely, if ever, do the patients complain. Indeed, it is the experience of those teaching institutions that judiciously conducted instruction is appreciated by the patient. In one hospital we might name, most of the inmates are pay patients, giving $7 a week willingly, because they know they are buying the services of the best practitioners in the land — the teachers of medicine — which service they could not get at tenfold the figure. The fact that teaching hospitals are overcrowded not by the poor alone, but by people independent of charity, shows that clinical instruction is not a bugbear. If the governing boards would know that while a few patients might be alarmed, on the whole most of them would be gratified by the attention paid them, and their sense of rectitude and manliness appealed to by the satisfaction that they are doing some good in enlightening students, so that others could be relieved; that their administration would be stimulated to do work beyond criticism; that the nurses would be aroused to better activity while under the observation of those not connected with the hospital; that the internes would do their very best to have most complete studies of the case, and, finally, that the chief in attendance, compelled to do his best at the risk of his reputation, they would gladly open their doors, even at the discomfort of the few, but to the advantage of the many. In short, the hospital should have teaching not to oblige the medical school, but for its own survival and regeneration. The benefits the student derives by the object lesson of an orderly hospital cannot be estimated. Will not every member of a hospital board admit that his own character, his own sympathies, have been benefited by his connection with the hospital, even though, perhaps, he has not the advantage of an impressionable age? Can he not see, therefore, how the youthful student can be influenced in thought and character and feeling? He cannot lightly toss aside this responsibility, nor even hide it by putting the onus of medical education on the teaching hospital. Every dollar endowing a non-teaching hospital robs the teaching hospital which is engaged in this larger duty.

It is true, a class which is compelled to have hospital attention may not sympathize with this feeling. How can we obtain the confidence of this class? Let us organize such association of prominent people in our teaching centers who will agree to have any operation, any feature of disease, witnessed by medical students at the judgment of their attending physician. It would be well if the individuals of such an organization would agree, first, to undergo hospital treatment; second, to be the object of observation by students; third, to have an autopsy performed

in case of untimely end. We feel sure that it would be wholesome, individually and publicly, if each would agree to ward treatment. Such association would rob hospitals of their terror and teaching of its dread. No one can deny that on the whole the public would be benefited from whatsoever point of view we look at it. Indeed, the public ought to learn that disease is an enemy to themselves and their country. Just as we make sacrifices in time of national warfare, so we should be willing to make sacrifices in the daily battle for life. Just as aristocrat and plebeian, landlord and tenant, fight side by side in the former, so they should array in solid phalanx in the latter.

But there are hospitals willing to admit students, and yet the privilege is not availed of. This arises because the teaching force of the medical college is not willing to sink its personality and allow the student to go wheresoever he will for his instruction. Courage and some sacrifice are required, perhaps. But, when one thinks of the mighty opportunity and the frightful waste, it is saddening. Every hospital should be a school. The fourth year should be so arranged that the student could avail himself of the advantages of hospitals in the immediate vicinity. Let each teaching body have the students understand what he must see and do, and trust you, the true student will see it at the best place and with the best men. He must be accountable, of course, with a rigidity that means the exact acquirement of knowledge. To this end the first two years could be well spent in the properly equipped laboratory university, whether in town or country, the third in the authorized hospital of the school, the fourth in extramural hospital work.

Is it not anomalous that the hospital boards give to the nurses who are to act as aids to the physician the highest opportunities, and yet deny it to those who are to give orders to the nurses? This, of course, arises because training schools are the product of modern thought and have not been trammeled by tradition.

But all this talk of the primary education avails but little if we do not see to it ourselves that education is continuous; that from the day of our graduation, forwards, we do naught but toil, toil, toil. It should go without saying, as a mere business proposition, that unless we unceasingly labor but little of the fruits do we pluck. It is demonstrated in a practical manner, for when we look about us and find the methods of those of our brethren whose labors are not in vain each one bears the scent of midnight oil.

The development of post-graduate schools, the growth of libraries, the groans of the printing press, the enthusiasm of medical societies, all testify to the spirit of persistent self-education that is abroad. It is not for me to urge further the importance of each of us taking from time to time months for study and reflection. Every active doctor should have his sabbatical year. We dare say, extended observations would uphold that in income a gain is one hundredfold for each dollar invested in educational outings, and for every hour thus employed, ten are added to life. To finance a medical man from first to last successfully, we dare say, spend all net earnings of the first five years on self-education; after ten years, 10% of the annual net earnings for an assistant, continuing the 25% investment for five years. Health, happiness, increased usefulness to the community, a success, which never comes from eccentricity, equal to doubling capital every five years, would follow.

In the course of our work it is necessary for us to halt from time to time and review. Not alone must our mental storehouse be swept out, refurnished, but we must constantly "jack up," if the term is permissible, our mental and moral machinery. Few of us are they who will not find, as our days grow fuller, an unconscious tendency to slight our work, to become slip-shod, to hurry over matters. It is partly an evidence of overwork. The post-graduate school is the salvation. No obstacle can withstand the continuity of drill, which the earnest of us keep in action. If, to continue the imposition, asked what element of character is perhaps lacking to the greatest detriment to the profession and public, we possibly, one and all, would say, courage. This is seen in the hesitancy which members of the profession show in giving an opinion, in advising an operation and in asking for an autopsy. How much confidence is destroyed by the want of free, frank avowal of the physician that he does not know on the one hand, or of clear, precise statement of his judgment concerning a case on the other! The greatest success in life is confidence. How many lives are lost by the worker in internal medicine not advising early and unequivocally an operation for fear he might be wrong in his diagnosis! And how many more are lost because the surgeon lacks courage to do, either because he fears the patient may die and his record be marred, or because he may operate when it is not necessary! We must admit we have had some operations done when they were not required, but let it be said to the credit of modern surgery, we have never seen an operation of such character performed by the right man that did any harm to the patient. On the other hand, the resort to operative procedures early, and in cases that even yet are not considered of surgical relief, has saved lives and lessened suffering to a degree that far overbalances the now and then futile measure. It may be assumed, without contradiction, that every case of bad appendicitis that happens to get well without surgical relief has in its wake three to five that die for the want of an operation. In other words, the pernicious influence of a surgical case that recovers without operation is evident in creating the hope that other cases demanding operation might get well without it.

And the man who does not want an autopsy — not only the centers of courage need stimulation, but too often the entire medical storehouse needs refitting. Something, best known to the phy-

sician himself, we trust, is lacking in the one who treats an obscure case for a day, six days, six weeks, and then does not want an autopsy. If true to himself, true to the demands of his profession, courage will not fail him. In our mental and physical round-up, we must see to it that courage is given a new backbone from time to time.

But, fellow members of the Association, not alone as members of this organization may we indulge in self-congratulation, but as members of a profession whose limitation knows no bounds we may join in felicitation. Neither language nor creed nor country fetters our profession's munificent sway. The thoughts of Ehrlich in Frankfurt, of our own Welch or Councilman, of Kitasato in Japan, are correlated. The knife of Mayo in America, of Robson in London, of Kocher in Berne, contributes to the relief of suffering in far Cathay. The founts of Lister's genius and Pasteur's divine inspiration bring countless blessings to England, to India, to France, and to Africa. What a stimulus it is to realize that, howsoever small the contribution of the humblest of us may be, its impulse will be felt in climes near and far and ages present and remote! What awe cannot but overtake us when we consider each heart throb we study entwines us to Harvey of two centuries ago; with every percussion tone reverberates the sound of Laennec's voice of a century; with each vaccine inoculation, the simple observation and reasoning of Jenner to stimulate our question and deductions!

We rejoice together and cherish our history, by the warp and woof of which we are woven to the past. What heritage for us and our children! Dead must be the soul that wearies of communion with the spirits of the past; deep must be its slumber on which falls the thought of centuries; lethargic its activities that are aroused not by the deeds of heroic men! "Honor and fortune exist to him who always recognizes the neighborhood of the great, always feels himself in the presence of high causes." We worship together our science, devotion to which brings forth character, smothers egotism, levels pretension, drives out solitude, develops such loftiness of thought which can see that "against all appearances the nature of things works for truth and right forever." Of our art, let us see to it that when the final summons comes it can be said of us, "Greater love hath no man than this, that a man lay down his life for his friends."

THE ASSOCIATION OF SURGICAL LESIONS IN THE UPPER ABDOMEN.[1]

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THE history of medical advance from the empirical treatment of symptoms to scientific expectancy has been based on the study of death and modern research work. The spirit has been fine, although somewhat pessimistic. The great advances have been along the line of preventive medicine and in the elucidation of problems connected with the eitology of disease.

Surgical progress has been, to a certain extent, through similar channels; the spirit, however, has been one of magnificent optimism. The great advances in surgery have come from the clinical side, modern technic having enabled examination of primary conditions during life.

As a groundwork for the study of medicine the pathologic laboratory and autopsy room offer unrivaled advantage, but they teach end results only. Who of us has not admired the precision with which a trained observer makes a diagnosis? A few days later one visits the autopsy room and here observes that this almost clairvoyant analysis was correct. At the same time, we must also acknowledge that the patient has not profited; it means a hundred pages of pathology and two meager lines of treatment. How many times do we notice in the autopsy revelations that the original lesion has been but slight, and at one stage easily curable, the pathology present largely the result of secondary complications and terminal infections?

The post mortem has been an institution for years, yet what did we know about appendicitis until surgery led the way, or about gallstone disease, supposed to be an "innocent postmortem finding," until operation opened up the field? Did knowledge of extrauterine gestation come from the autopsy? By no means. It was through the surgeon's knife, and why? Because secondary conditions so often mask the original lesion at the postmortem. On the contrary, our understanding of acute conditions causing sudden death has been brought about by dead-house investigations; for instance, fatal hemorrhage and perforation placed acute gastric ulcer on a sound foundation. Not so chronic gastric and duodenal ulcers, with late death from complications, cholangeitis from gallstone disease, and chronic pancreatitis from the same cause. These conditions could not be correctly studied, excepting after death from accidental cause, and real progress lay dormant until surgery invaded the field.

From research work we have profited much; we are gaining rapidly by this means day by day, but we cannot compare the animal to the man, nor can we always artificially create similar conditions. Like the postmortem, it has its limitations, yet these two fundamental methods have enabled us to advance. Without them we would still be in the Middle Ages. Now the time has arrived, in the light of these investigations, to view conditions from a new standpoint at a time when the lesion is in its infancy, long before the postmortem, while the patient may be benefited and the research work applied to the elucidation of living problems.

The medical man must haunt the operating theater as he has haunted the autopsy room and the laboratory. The times have changed; we

[1] Oration on surgery at the fifty-fifth annual session of the American Medical Association, at Atlantic City, June 7 to 10, 1904. By the courtesy of the Journal of the American Medical Association.

must have more treatment and less pathology. It is here that surgery wins its triumphs. We must not forget, however, that to physicians of pathologic training we owe the knowledge which enables us to approach the subject. Courvoisier was the real father of gallstone surgery. It was Balzer, Fitz, Opie and others who cleared up the pathology of pancreatitis, and surgery followed their lead. It is in the union of the internist and surgeon that progress is most rapidly made, and in the readjustment of science the former will be the architect and the latter the master builder.

Once more the physician and surgeon will come together, and the mistakes of endeavor in new fields will receive timely correction at the hands of the pathologist and experimental worker.

The surgical borderland of to-day lies in the upper region of the abdomen, a locality until recently considered almost purely medical. What are the reasons for this invasion, and have the results justified the attempt?

Surgery must be judged on three grounds: First, the mortality of the operation itself and the question whether this is greater than under the expectant plan; second, the permanence of cure contrasted with medical treatment; third, the question of disability, either introduced by the operation itself or the natural length of time which the healing process involves. On each one of these considerations we must answer Yes, and we can go still farther and say that earlier operation would reduce the mortality and increase the permanence of cure and lessen the disability.

Certain parts of the body are so closely related in their anatomy, function and pathology as to be almost necessarily considered as part of the same system. The generative organs of women form so distinct a field of work as to have built up a specialty. Can we separate diseases of the kidney from the ureter, bladder and urethra? By no means. Each may stand in an etiologic relationship to the others which cannot be ignored.

In the upper abdomen we have attempted to study the stomach independent of the associated organs, the liver and bile passages, the duodenum and pancreas. The result has been a confusion in diagnosis and treatment. The palm of a hand may cover a serious lesion of any one of these organs, and that, too, at the point of greatest liabilty; not only so, but any one of this group may start a pathologic process which may extend to any one of the others, and with fully as great frequency as occurs under similar conditions in either the generative or urinary systems.

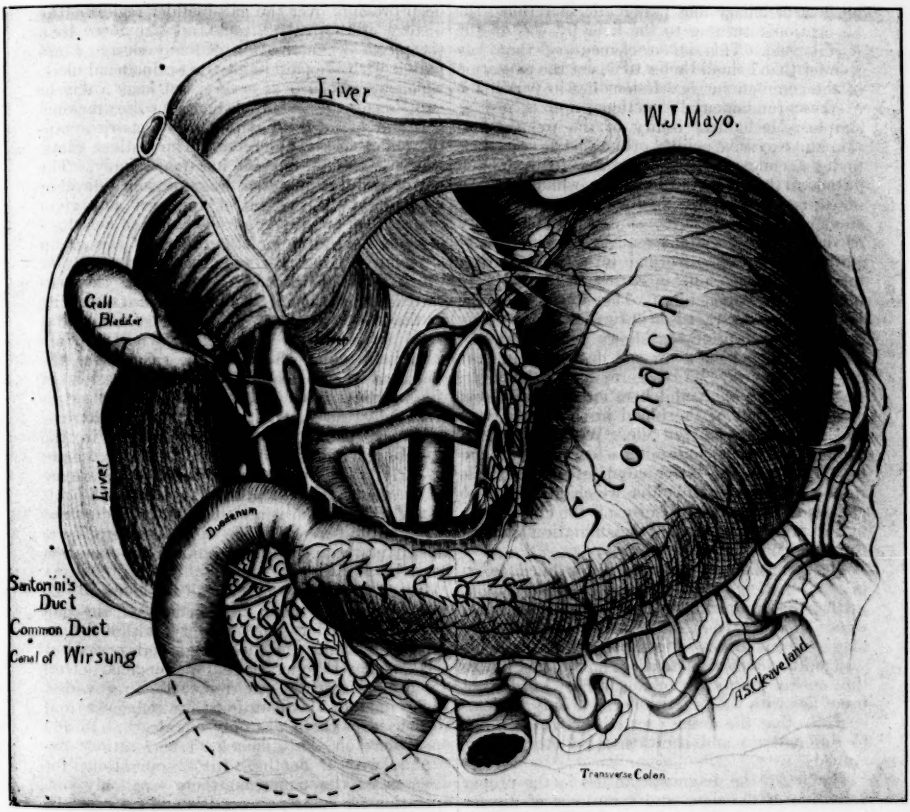
Note the disturbance of the stomach which occurs with gallstone disease; the adhesions to the duodenum and the pancreatitis, an association direct as it is vital. Again, let me call attention to chronic ulcer of the stomach with adhesions to the pancreas, secondary ulcer of the duodenum adherent to the bile passages or gall bladder. These are not fanciful pictures, but drawn from everyday work. I have no hesitation in saying that with an operative experience of over 1,400 cases of this description, mistakes in exact diagnosis are still common, and in many instances unavoidable. The history may be the only valuable diagnostic resource when the patient comes to us, and we all know how unreliable that may be. Given a history of painful attacks which have been very severe, but which have completely ceased, with tenderness on deep palpation in the epigastrium, and we may have disease of any one of these four organs, and not infrequently an association either direct or indirect of the pathologic process. If we clearly understand the possibilities of error, we are better prepared to meet complications or execute a change of front and operate on one organ when another procedure was planned. In the majority of cases a pathologic diagnosis is possible, and one can say with certainty, "This is gallstone disease," or "This is ulcer of the stomach"; but in a considerable minority a surgical diagnosis is the best that can be made. That is, we can say: "In this locality is a diseased process which requires operative treatment, the exact nature of which must be determined by incision." The patient does not come to us for the purpose of having a certain operation performed, but seeks relief from suffering and disability.

Let me call your attention for a few minutes to the anatomic diagram, showing the nearly vertical position of the stomach with the pylorus in the middle line of the body, and but little elevated above the lowest point of the gastric cavity. It is turned upward and to the right just enough to prevent the weight of the gastric contents bearing directly on the sphincter apparatus. The only portion of the duodenum in which we are interested is the four inches lying between the pylorus and the papilla of the common duct of the liver and pancreas. This may be called the vestibule of the small intestines. Its position subjects it internally to the perils of ulcer from the acid gastric juices which its thin tunics but inadequately resist. Externally its function is often interfered with by adhesions to the gall bladder and bile tract, secondary to gallstone disease. This unoffending bit of intestine is so often offended against as to cause it to become the most frequently diseased portion of bowel of the same length. The remaining eight inches of the duodenum is protected by the alkaline secretions of the pancreas and liver. Its fixed position and peculiar horseshoe shape, with its delivery point nearly as high as its origin, enable it to mechanically slow the ingested material during the mixing process, for which its large caliber affords accommodation.

The anatomy of the bile tract is equally interesting, and especially the relations of the common liver duct to the pancreatic duct and the duodenum. There is continuity of mucous surface, each protecting itself from the secretions of the others by the mechanical washing effects of its own secretion, the joint discharge and a feeble sphincter apparatus preventing entrance of the duodenal contents.

The gall bladder, as it furnished the initial lesion in more than one half of the diseases of this group, is of great interest. Like the appendix, an obsolete organ of storage function and limited outlet, it gives rise to a variety of troubles, which we are only of late beginning to appreciate. It is an old aphorism that "nature finds mischief for idle hands to do." The gall bladder has a capacity of about an ounce, and, as we find almost universally in organs of storage function, the neck is raised slightly about the lowest point to

The pancreas, composed of two originally separated parts, has in nearly half of the specimens which have been examined two patent ducts, that of Wirsung, which is the important one, uniting with the common liver duct. The minor duct of Santorini, however, has a possibility of useful function in certain diseased processes, as pointed out by Opie. The pancreas was originally an intraperitoneal organ, becoming retroperitoneal by a later evolution (Huntington), and in this anatomic peculiarity, Brewer



prevent the weight of contents resting directly against the outlet. The little pouch thus formed may be called the pelvis of the gall bladder (Brewer). It is here that the obstructing stone is so frequently lodged in cystic impactions. Murphy observes that the fundus of all organs has but few lymphatics, while the region of the neck has an abundant supply; hence, even with septic contents, there is but a mild reaction when the pelvis is obstructed, as compared with the startling temperature curves of duct stones.

believes, lies one of the reasons for the diffusion of fat necrosis resulting from acute pancreatitis. Mikulicz has called attention to the fact that adhesions to the pancreas in gastric cancer gave a mortality of 73% in his resection cases. Robson also notes the pancreatic mischief occasioned by perforating gastric ulcer on the posterior wall.

The blood supply of this group of organs is almost entirely from a single source in the celiac axis. It has been experimentally developed that the severance of all connections of the pancreas

excepting its blood supply does not check secretion if food is placed in the gastrointestinal tract. In the nerve supply from the pneumogastrics and sympathetic ganglion, we find the same direct relationship involved. If we study the function we see the same association. The stomach can be compared to a mill, the fundus the hopper, in which the food is macerated in a weak solution of pepsin and hydrochloric acid, and the muscular pyloric portion the grindstones in which the masses are broken up into a homogeneous whole. The entrance of food into the duodenum causes the outflow of biliary and pancreatic secretions, the absorption returning to the liver by way of the portal vein. This is so elementary that you wonder that I should refer to it, yet the causation of the common surgical lesions lies in perversion of these fundamental functions, and is just as simple. Mechanical injury of the pyloric portion and excessive acidity of the gastric secretions under anemic conditions give rise to ulcer, and lie behind the precancerous lesions, which, Ochsner notes, is found in the history of cancer of the stomach in the majority of cases. The acidity of the gastric secretions renders the contents of the stomach, when turned into the intestine, relatively sterile, but increases the liability of ulcer of the duodenum. The sterility of the upper intestinal tract is still further increased by intestinal absorption, as shown by Adami, the bacteria being picked up and destroyed in part by the glands. Many germs are, however, carried to the liver, and here either annihilated or screened out of the blood in the portal vein and discharged with the bile. We must look on the bile as always containing a few bacteria, and it is probably this attenuated infection of bile retained in the gall bladder which gives rise to gallstone disease, which in turn is the chief factor in the production of duct inflammation of both the liver and pancreas.

These considerations, so briefly outlined, taken in conjunction with the embryologic origin, justify the grouping of *the surgical lesions of the upper digestive tract*, and at once enable the diagnostician to associate the symptoms and the surgeon to direct his attention, not to one, but to the entire group of organs. The burden of proof lies with the practitioner, not only to demonstrate that the disease rests in one organ, but to differentiate and show that no other is involved.

The art of the diagnostician lies in the proper valuation of the signs and symptoms of disease in organs of associated function and pathology. The instinct which seems to lead some men to a correct conclusion, and by a mental process they could not themselves analyze, usually depends on few things, the immaterial or inconclusive evidence being unconsciously discarded. For instance, note the value of the colic in the diagnosis of gallstones. The typical attack comes on and stops abruptly, is relieved by vomiting or a feeling of movement of gas, is irregular in time, in regard to food, and not accompanied by temperature or pulse elevation, and leaves the patient able to attend her duties almost immediately after cessation of pain. While the pain lasts, it is excruciating, felt in its greatest intensity in the epigastrium, radiating upward behind the sternum and into the back. The distress penetrates to the right side, but occasionally to the left, and lasts from a few minutes to six or eight hours. When the patient comes to the physician it may have been years since the typical attacks; he may have forgotten them, the present trouble complained of being pain, digestive disturbance and tenderness on deep pressure over the gall-bladder region. The history of the early attack is worth more than the physical examination in many cases. Compare it with the pain in gastric or duodenal ulcer, which may be just as severe, but lasts a day or two longer, especially when due to regional peritonitis, and is accompanied by gastric symptoms and local tenderness. The patient diets, which means he reduces his food supply. The symptoms last more or less for some days or weeks, and the interval of apparent cure gives some weeks or months of comparative health.

Acute perforations of the organs of this group are relatively common, and give rise to symptoms which would be at once recognized if they occurred in the region of the appendix, but occurring in the upper abdomen too often go to a fatal issue unoperated. The initial symptoms are remarkably alike, whether of the gall bladder, the duodenum, stomach or acute perforation of the pancreas with fat necrosis. The onset is essentially the same in each. Sudden extreme epigastric pain, with collapse, ushers in the attack, and muscular rigidity, as a rule, comes on early. The diagnosis of perforation, if we are on our guard, is easy, although it may be difficult to say which organ is affected; but this does not make any difference. The vital consideration is that it has happened, and immediate operation must be performed.

In 811 operations on the gall bladder and bile tract we had 4 acute perforations of the gall bladder, with but one recovery, although the average mortality in the benign series was but 4.47%. In 45 operations for duodenal ulcer, 4 acute perforations occurred, with 2 recoveries, while in the 41 operations for subacute and chronic ulcer there was only one death. In 469 operations on the stomach, 5 perforations occurred, with 2 deaths. In 32 operations for diseases of the pancreas, there was only one operation for acute pancreatitis and fat necrosis, with recovery. This gives 14 cases of acute perforation, with a mortality of 50%, and why? Because the operation was usually too late. The death-rate in over 1,150 operations for subacute and chronic benign conditions of this group of organs averaged a little less than 5%, counting as a death from operation any patient dying in the hospital without regard to cause or time elapsed between the operation and the fatal issue. If we add to this mortality of 50% in operations for acute perforation, the cases seen in a moribund condition beyond even attempt

at relief, and the still larger number in which death occurs without an ante-mortem diagnosis, we get some idea of the appalling nature of the disaster. To be successful, operation must be immediate; the condition is as imperative as hemorrhage from an artery of the third class. Few recover operated on later than ten hours after perforation. The conditions simulating perforation in the upper abdomen, such as thrombosis of the mesenteric or splenic vessels, diaphragmatic and duodenal hernia with strangulation, and so forth, are rare, and likewise call for early operation.

As a rule, the history and location of the early acute pain will furnish evidence as to the origin of the trouble. Preceding perforation of the gall bladder there are often symptoms of several days' duration with a history of gallstones. The acute pain occurs in the gall-bladder region. Early drainage with removal of the gall bladder should give a mortality of not to exceed 10%.

Duodenal perforation usually occurs in cases of chronic ulcer with years of symptoms preceding; but the immediate onset is exceedingly acute, and not ushered in by a few days or hours of prodromata, as is often the case with the gall bladder. The location of the early pain is just to the right of the median line. The liquids gravitate at once to the appendiceal region and simulate perforated appendix. The rapid diffusion of escaping contents is fatal to delay. Operation for acute perforation of the duodenum is rarely successful after eight hours. Suture of the perforation with suprapubic pelvic drainage and after-treatment in the sitting posture (exaggerated Fowler's) in early cases should give 80% or more of recoveries.

Gastric perforations occur on the anterior wall, according to Brunner, 7 times to 1 posterior, and near the cardiac end 5 times to 3 times in the pyloric portion, and near the lesser curvature 122 times to 16 times near the greater curvature. The initial pain is usually to the left of the median line, and early diffusion of fluids is to be expected. Only 10% occur without previous symptoms of chronic ulcer. The results of operation being in direct ratio to the amount of gastric contents, and the length of time which has elapsed, the treatment is similar to the duodenal ulcer.

The term perforation of the pancreas from inflammation with resulting fat necrosis is a purely pictorial expression, and not a pathologic entity in the sense the word is used in the preceding remarks, yet it conveys the idea and calls attention to the value of peritoneal drainage in its treatment, as shown by Woolsey. The symptoms are sudden pain in the epigastrium, collapse and early extreme distention of the abdomen. On opening the peritoneal cavity, free fluid often of a hemorrhagic character is evacuated. The little fatty masses in every direction and the enlarged pancreas call attention to the source of the trouble. This particular phase of acute pancreatitis cannot be separated from the hemorrhagic type in which treatment is as yet in an unsettled state. Those interested in this question will find a mine of information in the Hunterian lectures for 1904 by Mayo Robson.

The group of acute perforations gives an unsatisfactory mortality, with a prolonged period of disability from drainage, and without a certainty of permanent cure of previous underlying conditions. This will not long continue. Like acute gangrenous appendicitis, the condition will be recognized early with corresponding improvement in results.

The diagnosis of the chronic infective lesions of the organs of this group is in a far more satisfactory condition. The general mortality of gallstone operations is not above 5%, taking the cases as they come, but even this is too high. Grouping the cases in which the entire process is limited to the gall bladder, the mortality is from 1 to 2%, and depends to a large extent on the general condition of the patient. Secondary complications, chiefly those which involve the hepatic and common ducts with resultant cholangeitis, pancreatitis and so forth, are responsible for the death-rate. As practically all of the patients have symptoms on which a diagnosis could be based previous to the complications, it will not be long before early operation in patients otherwise in good health will be the rule as it is now in chronic and relapsing appendicitis. Not only is the mortality thereby reduced, but the disability is likewise lessened. The average stay in the hospital for uncomplicated gallstone patients is slightly less than seventeen days; the convalescence of the complicated duct cases is prolonged one or two weeks.

Chronic infections of the pancreas are usually secondary to gallstone disease, and, as a rule, do not occur excepting where the common duct has been directly irritated by the presence of calculi, although the consequences may continue for some time after the passage of the offending body. The results of drainage of the gall bladder and bile ducts are extremely satisfactory. In our series of 32 cases there were but 2 deaths; these patients had coincident suppurative cholangeitis.

Chronic infective lesions of the stomach with ulcer as a type are becoming better understood every day, as surgical operation discloses the actual conditions present. The primary mortality of operations for their relief are in a fairly satisfactory condition, but as to ultimate results we cannot say definitely. For the obstructive complications the result of ulcer, there can be no question as to the relief afforded and at a nominal risk. The dilated stomach with retention or stagnation of food suggests at once drainage operations with gastrojejunostomy as the type. We have patients of this description alive and well more than twelve years after operation.

Chronic ulcer without mechanical obstruction gives a less promising outlook. The very fact that there is normal gastric motility indicates that gastroenterostomy or other drainage operation is less necessary. Our results in operations for this description of lesion have not been wholly satisfactory, and furnish a considerable percent-

age of secondary operations and failures to relieve.

Cannon's experiments have shown the same results. A gastroenterostomy on a normal stomach of an animal does not drain the gastric cavity, even if placed at the lowest point. The gravity advantage of the gastroenterostomy is overcome by intra-abdominal tension, and the food, by muscular action, is carried out the pylorus rather than the artificial opening. The magnificent showing of gastroenterostomy in obstruction has led to the indiscriminate performance of the operation in those cases of ulcer in which gastric drainage is normal. This particular phase of the subject must be further investigated.

Chronic ulcer of the duodenum is relatively more common in the upper two inches than in any corresponding portion of the stomach. It is especially liable to perforate, although its sheltered situation usually leads to adhesive protection. Many pyloric ulcers will be found to have their origin on the duodenal side. Gastroenterostomy is the operation of choice, as it diverts the irritating gastric juices and food products from the sensitive surface, thus promoting rapid healing. We have performed gastrojejunostomy 286 times for all purposes, with a mortality of 5½% in the benign series. The recent improvements in the technic of gastroenterostomy has greatly reduced the mortality and largely eliminated the causes of failure to mechanically relieve the conditions. Moynihan well says that "the surgeon may not unreasonably expect that from being a last resource gastroenterostomy may be considered as a method of treatment worthy of consideration in a much earlier stage of chronic ulcer of the stomach." Excision of gastric and duodenal ulcers would seem to be a wise procedure, but is open to certain strong objections. In 20% of cases more than one ulcer is present, and one or more may be undetected or lie in an inaccessible situation. It leaves the ulcer tendency unrelieved, and more ulcers may form. Rodman has suggested the removal of the pyloric or ulcer-bearing portion of the stomach with complete closure of both duodenal and stomach ends and independent gastrojejunostomy. We have followed this plan in 5 cases of inveterate ulcer relapsing after gastroenterostomy, with good results. The gastroduodenostomy of Finney is a most excellent operation, and we would predict a wider field of usefulness than it has enjoyed. We have performed this operation 46 times, with one death and no relapse. The theoretical objection is that in open ulcer the food must pass the ulcerated area before reaching the widened pylorus, and obstruction has no part in the production of ulcer, as is shown by the development of duodenal ulcers. Pyloroplasty must be discarded. While we had no deaths in 20 operations, we had 7 relapses.

In briefly calling attention to the malignant diseases of this group of organs, the writer would emphasize the possibilities of cure by means of operation. In the gall bladder we found 4% of cases at the operating table had malignant disease, and all of these cases had gallstones present or evidence that they had been present at one time.

Since it has become the practice to remove all thick-walled gall bladders as useless and a possible source of future trouble, many cases of malignant disease in an early stage have been in this way, as one might say, accidentally cured. We have met with several such instances.

Cancer of the stomach is the most common type of malignant disease in the human body, constituting one fourth to one third of the total number. The radical treatment of gastric carcinoma is now on assured ground, with a mortality of 10%, or less in favorable cases, to 20% in late but still operable disease. The only necessary thing for success is an early diagnosis, and this must be on clinical grounds, supplemented by early exploratory incision. In 46 gastric resections for pyloric cancer we had 7 deaths.

The profession may well look on the surgical achievements in this new field of work with pardonable pride. That there are many shortcomings must be admitted, but in the history of surgery there has never been a territory opened up with equal rapidity, nor one in which the physician and surgeon have worked together in such harmony for the common good. The statistics on which this paper is based represent the operative experience of Dr. Charles H. Mayo and myself.

Original Articles.

THE CASPER–HIRSCHMANN DEMONSTRATION AND PHOTOGRAPHIC CYSTOSCOPE.[1]

BY G. S. WHITESIDE, M.D., BOSTON.

I WANT to demonstrate to you this evening, a new cystoscope that combines several features of much interest, and I shall preface my remarks with a few words on cystoscopy in general and in the female in particular. On account of the anatomical arrangement of the female urethra and bladder, digital and instrumental exploration have been practiced since prehistoric times. Visual examination of the bladder is a diagnostic method of more recent date, but, nevertheless, was practiced so long ago that no one living now can claim to have been the first to attempt it. The first instruments, of course, were crude; later, various improvements were introduced along different lines, resulting at the present time in two classes of instruments for the examination of the bladder in the female. The simplest and most generally employed of these two classes is that which has been perfected and brought to notice in modern times, and in this country especially, by Kelly of Baltimore.

This, as you all who are doubtless familiar with

[1] Presented at the meeting of the Suffolk District Medical Society; Section for Obstetrics and Diseases of Women, March 23, 1904.

it, through having used it as well as heard of it, are aware, consists essentially of an open endo-

instructor explains the significance of each object demonstrated. With regard to its use as a

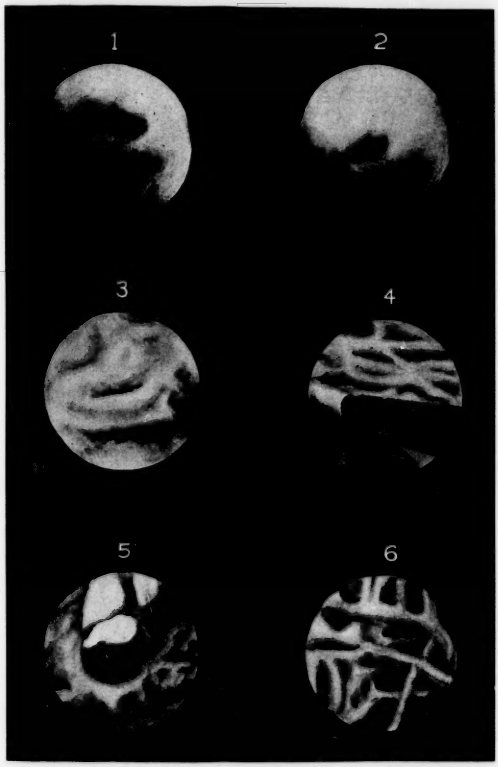
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CYSTOSCOPE — WHITESIDE.



Notice the shadow and the door, pit- papilla.
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hronic obstruction certain bundles of beculated bladder. own in Fig. 6 and en inserted in the w it on the bladder

VENTION OF TION.*

ELPHIA, PA.

that he did not see what it was intended that he should see when his turn came to look through the instrument. With this cystoscope it is possible for the student and the instructor to look through it simultaneously and observe every feature of the interior of the bladder while the

In the arduous research for new measures to stamp out pulmonary consumption it is astonishing to find that one of the most interesting episodes in the history of our country, which

* Read before the Philadelphia meeting of the American Climatological Association, June 4, 1904.

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Chronic ul more commo any corresp is especially sheltered sit protection. to have their troenterostom diverts the i products fro moting rapi gastrojejunost with a morta The recent i gastroenterost tality and l failure to me Moynihan wel unreasonably resource gast as a method o in a much ea stomach." E ulcers would s open to certa cases more th more may be situation. It relieved, and has suggested bearing portio closure of bot independent g lowed this pl relapsing afte results. The most excellent wider field of We have perfo one death a objection is th the ulcerated pylorus, and production of ment of duode... ulcers. Pyloroplasty must be discarded. While we had no deaths in 20 operations, we had 7 relapses.

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This, as you all who are doubtless familiar with

[1] Presented at the meeting of the Suffolk District Medical Society; Section for Obstetrics and Diseases of Women, March 23, 1904.

it, through having used it as well as heard of it, are aware, consists essentially of an open endoscopic tube, the cavity of the bladder being illuminated by a light reflected from the outside. In this class of cases the bladder is dilated with air induced to distend it by the assumption of a favorable posture on the part of the patient, namely, the knee-chest position. The disadvantages of this method of examination are several; the most important of them being that the knee-chest position is an extremely tiresome and objectionable one for the unetherized patient to assume, and a very inconvenient one in which to place a completely etherized patient. The next most important objection is that the light, being reflected from the outside, often does not give as clear and satisfactory an illumination of the bladder cavity as one might wish. The advantages of this instrument are also several. The size of the endoscopic tube which it is possible to use is satisfactorily large. The fact that it is an open tube allows the possibility of various instruments, such as probes, curettes, forceps, scissors or catheter, being introduced through it for purposes of diagnosis or treatment. The cost of the apparatus is very small, and its simplicity prevents it from ever getting out of order. The technique of this method of examination is comparatively easy and requires but little practice to be remembered.

The other class of cystoscopes, of which I especially wish to speak to-night, has one great general advantage in that they may be used with precisely the same technique in either the male or the female. This class of instruments was originally made practically useful by Nitze, twenty-five years ago. They carry the light at the inner end of the instrument itself. The view is obtained through the modified telescope in the shaft of the instrument, and the medium used for distending the bladder is clear boric acid solution. Many modifications, all dependent on the same essential principle, have been devised by surgeons in almost every civilized country.

The one of which I especially wish to speak, the Casper-Hirschmann, is an instrument combining three valuable features. It may be used as a simple inspection cystoscope, or it may be used as a means of demonstrating and teaching cystoscopy and vesical pathology, in the living, to students, or it may be used for taking permanent photographic records of interesting features in normal or diseased bladders. First, with regard to its use as a demonstration cystoscope, I wish to say that the greatest difficulty experienced by those who wished to teach cystoscopy has hitherto been owing to the fact that after some object of interest had been seen and focused by the instructor, the student almost invariably moved the instrument sufficiently so that he did not see what it was intended that he should see when his turn came to look through the instrument. With this cystoscope it is possible for the student and the instructor to look through it simultaneously and observe every feature of the interior of the bladder while the instructor explains the significance of each object demonstrated. With regard to its use as a photographic instrument it is also extremely satisfactory, because the difficulty which existed in previous photograph cystoscopes has been eliminated. This difficulty was that after the surgeon had focused the object he wished to photograph, he was obliged to unscrew the eyepiece of the cystoscope and screw on the camera, thereby taking his picture entirely uncontrolled by sight. In this instrument, it is possible to observe the object not only before but during the time it is being photographed, because the surgeon may look through one eyepiece of the instrument while the camera is placed at the other.

I have used this instrument for diagnosis, demonstration and for photography in several female and in a larger number of male cases. I will pass around a few photographs which I have taken with it recently. I think all of you will agree, on giving the matter thought, that the technique is simple and the view of the object far more satisfactory than is usually the case with the open endoscopic tube.

I have here some bladders which have been taken at autopsy and hardened in formalin. It is possible in these specimen dummies to demonstrate the cystoscope almost as well as in the living.

With regard to cystoscopy in the female I wish to say that it is a field as yet comparatively little explored. There are many pathological conditions associated with the uterus and its appendages which press upon, distort or even invade the cavity of the bladder, producing characteristic appearances in the interior of that viscus, and if the gynecologist will perfect himself in the use of the cystoscope, he will be rewarded by observing appearances in the bladder which will lead him to a more accurate diagnosis in inflammatory or malignant disease, or even in cases of simple malposition of the uterus.

EXPLANATION OF PLATE.

FIGS. 1 and 2 show normal ureter openings. Notice the shadow cast by the ureteral papilla on the bladder wall and the door, pit-like orifice of the ureter opening in the apex of the papilla.

FIGS. 3 and 5 are from a case in which an incomplete litholapaxy had been done. Fig. 3 shows a long slit-like opening of a ureter. At the base of the papilla is a fissure of fold in the mucous membrane. Notice the solid, leathery appearance of the mucosa due to chronic cystitis. Fig. 5 shows three broken fragments of stone lying on the bladder floor.

FIGS. 4 and 6 are views taken in a case where chronic obstruction to the outflow of urine has caused hypertrophy of certain bundles of muscle fibers in the bladder wall — a so-called, trabeculated bladder. The arrangement of the muscle bundles is well shown in Fig. 6 and also in Fig. 4 above the catheter which has been inserted in the ureter. The shadow of this catheter shows below it on the bladder wall.

HUMAN SLAVERY AS A PREVENTION OF PULMONARY CONSUMPTION.*

BY THOMAS J. MAYS, A.M., M.D., PHILADELPHIA, PA.

IN the arduous research for new measures to stamp out pulmonary consumption it is astonishing to find that one of the most interesting episodes in the history of our country, which

* Read before the Philadelphia meeting of the American Climatological Association, June 4, 1904.

clearly points out the true and only rational path for the extermination of this disease, is entirely overlooked, *viz.:* that pulmonary consumption was comparatively unknown among the plantation slaves of the South before the war, while in the large cities of the South during that period it was no more prevalent among them than it was among the whites. This rarity was so obvious, and is verified by so many lay and medical authorities, that it does not call for any extended statistical support. Thus, according to the health statistics of Charleston, S. C., of which I was not able to obtain an uninterrupted report up to the present time, the negro death-rate by consumption in that city in 1860 was the same as among the whites, *viz.:* 1.75 per thousand living. In 1867, whites, 2.00, negroes, 3.40; in 1876, whites, 2.00, negroes, 6.95; in 1881, whites, 2.60, negroes, 7.03; in 1890, whites, 3.55, negroes, 6.86; in 1900, whites, 1.23, negroes, 6.15; in 1901, whites, 1.89, negroes, 5.04; in 1902, whites, 1.43, negroes, 5.74. This shows that the disease was 228% more prevalent among the negroes in 1902 than it was in 1860, and that its death-rate was 300% greater among the negroes than among the whites in 1902. A similar vulnerability of the negro race to consumption is shown in other sections of the South. Thus in New Orleans its annual average death from 1897 to 1891 — a period of five years — is 123% greater among the negroes than among the whites; in Atlanta, Ga., from 1899 to 1901 — a period of three years — it is 141% greater; and in Augusta, Ga., from 1898 to 1902 — a period of four years — it is 424% greater among the negroes than among the whites.

Now on what score can we account for the enormous increase of consumption among the former slaves of the South since 1860? Why should the death-rate from consumption be from two hundred to four hundred per cent larger among the negroes than among the whites of the South at the present time, and this in spite of the fact that they were on an even basis, in this respect, in 1860? What destructive change has occurred in the environment of the southern negroes since 1860 that has left the white race practically untouched? Why should the negroes in the course of thirty-five years be transformed from the least to the most consumptive race in this country? This came to them neither through a change of climate nor through the influence of migration, but in the land of their unwilling adoption in which they had continually lived for more than two hundred years, and without a single visible sign of warning. It is this: Since they obtained their freedom their entire social, economic and political being has been revolutionized. In place of being dependent on their owners for their food, clothing, shelter, medical care and nursing as they did in the days of slavery, they are thrown on their own resources and are forced into a struggle for existence that is as unequal as it is tragical. They are thus brought into the most intense competition for existence with a people whose civilization is thousands of years ahead of their own development. Their condition may be fitly compared to that of an animal which is confronted by a new geological epoch to which it must adjust itself or perish. It is not surprising, therefore, that in this task of re-adjustment many of them fall a prey to diseases of the brain and nervous system, the very organs which bear the brunt of the battle in adapting this race to its changed environment; and for this and no other reason do they become consumptive.

That the brain and nervous system endure the strain of this great contest is amply attested by the fact that before the Civil War insanity, like consumption, was comparatively rare among the negro slaves, yet, according to Dr. T. O. Powell,[1] this disease has increased 705% among these people from 1870 to 1890 in the state of Georgia. This high authority also states: "I am forced to believe that insanity and tuberculosis are first cousins, or at least closely allied. The sudden outburst of insanity with the colored race of the South came associated with tuberculosis, hand in hand, keeping pace one with the other."

The same is true of North Carolina, for Dr. J. F. Miller, Superintendent of the Eastern Insane Hospital of that state, declares[2] that from 1885 to 1896 insanity increased 256% among the colored people in that state, and that in 1884 consumption caused 14%, and in 1895 27%, of the total number of deaths in his hospital, and this in spite of a reduction of the general mortality rate.

Dr. James D. Moncure, Superintendent of the Eastern Hospital for the Insane, in Virginia,[3] states that before emancipation there were about 60 insane negroes in that hospital, that now (1896) there are over 1,000 — an increase of over 1,600% — and that they readily contract consumption.

It is obvious, therefore, that the tremendous increase of consumption and insanity among the southern negroes is, in the first place, due to the heavy economic and industrial burdens which were suddenly placed on their shoulders, and which they had neither the wisdom nor the organized constitutional or mental strength to discharge; and in the second place to improvidence of living, to poor and improperly prepared food, to ignorance of the laws of physiology, to bad hygienic surroundings, to overcrowding, laziness and the lack of persistent employment, to improper care and nursing when ill, to dissipation of all sorts, to lack of self restraint, to alcoholism, and other vices. On this point the testimony of Dr. Miller, who has been quoted, is very emphatic and applicable. He says: "The negro in slavery had no thought for the morrow, . . . but he spent his quiet, humble life in his little cabin, with his master to care for every want of self and family. He lived under

[1] Dr. T. O. Powell, Superintendent of the Georgia Asylum for the Insane. Report on the increase of insanity and its supposed causes.
[2] The effects of emancipation upon the mental and physical health of the negro of the South. North Carolina Medical Journal, Nov. 20, 1896.
[3] Private communication.

the best hygienic restraint. His habits of life were regular, food and clothing substantial and sufficient, and the edict of his master kept him in-doors at night and restrained him from promiscuous indulgence and the baneful influence of the liquor saloon. In sickness he was promptly and properly cared for by physician and nurse. Freedom came to him, and a change came over his entire life. Under his former manner of living he enjoyed wonderful immunity from brain and lung trouble; and I confidently assert that the germs of these troubles came to the same man and race in consequence of his changed environment and the manner of life which followed."

That the same influence which gave immunity to the southern slaves from consumption will produce the same effects elsewhere is shown on a somewhat less extensive scale by the event of the importation of Chinese labor into Cuba.[4] Thus, from 1860 to 1870 Spain brought 250,000 coolies under contract to the island of Cuba. Their ages ranged from eighteen to thirty years, and they consisted of the scum and off-scourings, principally of the cities of Canton and Macao, and in spite of the most careful selection they brought with them consumption and other diseases and vices for which China is noted. The vast majority of them were placed on plantations, and being under contract, and under the supervision of overseers, who ministered to all their physical necessities, their conditions were identical to those which surrounded the negro slaves in the South before the war. The result was that within the first few years consumption was eliminated, either through death or cure, and never reappeared in them or their offspring.

From all that has been said, the prevention of pulmonary consumption resolves itself into such efforts of education as will impress the masses with the importance of leading a life similar to that (excepting slavery), which made the slave population of the South practically immune from this disease before the Civil War. What was done once may be done again, for the laws of health which held true then are equally applicable now. Such efforts of prevention mean the inculcation of sound principles of hygiene; the eating of wholesome and properly prepared food; the wearing of suitable and seasonable clothing; the avoidance of damp, unsanitary and overcrowded dwellings; the abstinence from nerve-strain and over-work; the shunning of strong drink and other vices; the teaching of the value of useful labor; the encouragement of agricultural and mechanical pursuits; the training in physical development; the supervision of proper convalescence from what to them seems a trivial cold or cough, or from acute illness or injury; the procurement of effective medical attendance and nursing in sickness or accident, etc.

Now a large hospital and dispensary practice among consumptives extending over a period of eighteen years has convinced me that the practical solution of the prevention of this disease is one of reaching the masses. People who are predisposed to, or are suffering from, this disease do not come to such institutions until the malady has gained a strong foothold, and the stage of prevention has been passed; not because they would not eagerly do so, for they possess as strong a share of the instinct of self-preservation as the common run of mankind, but they fail to realize the true significance of their condition until it is too late. Hence the only effective measure is to bring yourself in contact with the people by inaugurating a campaign of education. To bring this about is for a charitable organization to divide a city, or some of its wards, into convenient sized sections, allot each section to a competent physician, whose duty it will be to make a general canvass of his section once a month, or as often as is necessary, among all willing residents who show or possess a family taint, or who for any reasons are believed to be in danger of consumption, to take condensed histories of all such individuals and families, to impart advice in regard to food, clothing, shelter, habits, etc., etc., to give medical counsel and treatment whenever needed, and to send all cases which need active supervision to an institution which is well supplied with all the paraphernalia necessary for the treatment of every defect in such individuals.

[4] Dr. H. McHaton. Georgia Journal of Medicine and Surgery, June, 1902.

Clinical Department.

A CASE OF CARBOLIC ACID POISONING.

BY WILLIAM W. HARVEY, M.D., BOSTON.

THE following case so well illustrates the action of carbolic acid in toxic doses, and the value of prompt and persistent treatment in such cases, that it seems especially worthy of report.

The patient, a child of two years of age, swallowed a certain quantity of strong carbolic acid which had been left carelessly in a cup on the floor by the mother who was engaged in the process of exterminating bedbugs.

According to family reports, the child barely had time to take a few steps, when it fell, limp and unconscious. I arrived ten minutes later. At this time the pulse could not be obtained at the wrist. The entire body was cold and mottled. Respirations were infrequent, irregular and stertorous.

While considering the child moribund and the case hopeless, I gave in rapid succession a large number of subcutaneous injections of brandy and $\frac{1}{60}$ grain of strychnia. In a few minutes the pulse was perceptible at the wrist and respirations improved.

By combining a glass syringe and a large, soft rubber catheter, I improvised an excellent stomach pump and washed out the stomach, after which the whites of two eggs and a half ounce of brandy were introduced through the tube. I do not think the stomach contained much of the carbolic acid, the symptoms having been produced, rather, by the immediate absorption of a small quantity of the substance.

Pulse and respirations continued fair for about a

half hour, when respirations again failed. In spite of the Sylvester method of artificial respiration being employed faithfully, cyanosis increased; pupils dilated, lips became black, muscles rigid. Patient refused to inspire. At this crisis the lungs were filled several times by mouth to mouth insufflation before the least tendency to automatic function became apparent. By these methods, extending over perhaps ten minutes, respiration was again restored.

Close watching and occasional stimulation were required during the next three or four hours, when patient was left in practically a normal condition, conscious and desirous of sitting up. The few slight burns were superficial and insignificant.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION. SECTION ON PRACTICE OF MEDICINE.

DR. ALEXANDER LAMBERT of New York City, Chairman.

FIRST DAY. JUNE 7.

Chairman's address:

THE ADAPTATION OF PURE SCIENCE TO MEDICINE.

DR. ALEXANDER LAMBERT, of New York, read this paper. He said the most complete adaptation of scientific work to clinical medicine was the work of Behring and others in the antitoxic sera for diphtheria and tetanus, conceived and worked out completely in the laboratory before it was applied to medicine. The preventive inoculation against typhoid fever, plague and cholera was the practical application of our ideas of immunity, and the success so far obtained seemed to be that about 50% of those inoculated were protected against these diseases, and of those who acquired these diseases after being inoculated the mortality was about 50% less than in the uninoculated. The practical value of the study in the variations of blood pressure was just beginning to be recognized. The knowledge obtained by the use of blood pressure instruments would increase our therapeutic capabilities, for they gave valuable indications of the variations in the vaso-motor control, and they seemed to promise a distinct gain in a more intelligent treatment of cardiac and renal diseases, and would give valuable indications in infectious diseases of when to give and when to withhold stimulants. The closest co-operation between clinicians and laboratory workers, unfortunately not always present, was a thing to be desired. One often saw the worker in the laboratory failing to appreciate the clinical situation and the difficulties of the clinician. On the other hand, clinicians were often prone to throw the responsibility of a difficult diagnosis on the worker in the laboratory, and when he failed, to criticize the result and in turn throw discredit on all laboratory results.

PERNICIOUS ANEMIA AND ITS RELATION TO GASTRIC DIGESTION BASED ON TWENTY-FIVE CASES.

DR. CHARLES G. STOCKTON, of Buffalo, read this paper and gave the following summary: Of the 24 cases here reported, the youngest was thirty-two, the oldest seventy; average forty-five plus years; there were 20 males and 4 females; 13 had outdoor occupation and 11 indoor; the longest duration of illness was in one five years, the shortest six months and fatal; 12 were known to be dead, 5 living, the others unknown. All had dyspnea on exercise; all suffered from faintness and weakness; 16 had the gaseous pulse; 16 had a heart slightly enlarged; 16 had systolic apical bruit; 6 had *bruit de diable;* 8 had other bruit; 22 had a distinct lemon-colored tint of the skin; 15 had a tongue strikingly denuded of epithelium; 10 had good appetites, 7 capricious, and 7 anorexia; 18 complained of symptoms of stomach trouble; 10 had constipation, 8 diarrhea, and 6 irregularity of the bowels; in 11 the liver was enlarged; 1 had four periods of improvement, 3 two periods, 8 one period and 8 no period of improvement. After his attention was called to the subject by Billing's paper, he found signs of spinal cord involvement in 6 out of 9 cases. Nine cases showed slight dilatation of the stomach; in 13 the gastric digestion was absent, in 8 it was very low, and in 3 it was fairly good. Five showed evidences of gastric catarrh. Six showed no acidity of the gastric contents, one (the highest) showed a total acidity of 46, one 26, and the average about 10. Four showed the presence of combined chlorides. One showed free hydrochloric acid .05%, one .06% and one .022%, in all the others it was absent. Six showed lactic acid present; 4 showed other organic acids. The acid salts were very low, 18 being the highest, 5 having none whatever; 7 showed the biuret reaction; 6 showed rennet present. The digestion of starch was poor in all save two cases.

DR. R. C. CABOT, of Boston, said that of 150 cases of pernicious anemia, five sixths showed the absence of hydrochloric acid, and yet digestion went on perfectly well. Hydrochloric acid appeared to be a luxury, not a necessity.

DR. MAX EINHORN, of New York, said he had met with many cases of pernicious anemia in which the gastric digestion was not impaired, and that cases of achylia gastrica might develop into acute pernicious anemia.

DR. ALLEN JONES, of Buffalo, wished to emphasize the fact that achylia gastrica was more often encountered without pernicious anemia than with it.

DR. WILLIAM OSLER, of Baltimore, said that we were still much at a loss in our attempts at finding an exact pathology of pernicious anemia.

DR. J. N. HALL, of Denver, Colo., has seen striking improvement when hydrochloric acid was given in large doses.

DR. GEORGE DOCK, of Ann Arbor, Mich., had met with success in the treatment of pernicious anemia with large doses of dilute hydrochloric acid, fresh air and diet.

DR. CHARLES G. STOCKTON, of Buffalo, thought that we should draw a distinct line between achylia gastrica with atrophy of the mucosa and cases of pernicious anemia.

THE DIAGNOSIS AND TREATMENT OF PERFORATION IN TYPHOID FEVER; WITH A REPORT OF NINETEEN CASES, OF WHICH SIXTEEN WERE OPERATED UPON, WITH FIVE RECOVERIES.

DR. MORRIS MANGES, of New York, read this paper. He said that in drawing practical conclusions from this analysis of the varied clinical features of perforation as it occurred in the series presented, it would at once be seen that there was no symptom or group of symptoms which were pathognomonic. In suspected perforation the condition of the abdomen as regards tenderness, rigidity, distention, respiratory excursions, and liver dullness should be routinely observed. The leucocyte count was of little value. He said that most physicians expected too many and too pronounced symptoms for an early diagnosis of perforation. Granting the possibility of spontaneous cure, the best results ever claimed for nature's method had been 5%; contrast this with the latest statistics published by Hare and Ashhurst of 362 cases which they had collected with a recovery of 26% with operation.

The only exception to the rule of early operation was that moribund patients could not be operated upon.

A CASE OF TYPHOID FEVER WITH AN UNUSUAL COMPLICATION.

Dr. William Edgar Darnall, of Atlantic City, reported this case. The case was a very mild one and was known as "walking typhoid" up to the time the patient came to Atlantic City. The case seemed peculiar in that there was a uterine flow which assumed the proportion of a hemorrhage, and only packing the vagina with gauze succeeded in checking it. He said that hemorrhage as a complication of typhoid fever presented some interesting phases. No mention was made of uterine hemorrhage as a complication of typhoid fever by most authorities. Osler, however, mentioned "a rare and fatal form of typhoid fever characterized by cutaneous and mucous hemorrhages." In the case reported the hemorrhage did not usher in the attack, but occurred in what must have been the third week of the trouble. The normal monthly period did not figure in any way in the case because the menstrual epoch occurred two weeks previous.

Dr. William Osler, of Baltimore, said that the essential and most important thing was intelligent watchfulness on the part of the physician. In hospital rules can explicitly be laid down, and specific directions be given the house physician who should be on the alert for certain changes in the typhoid cases pointing to the possibility of intestinal perforation.

Dr. J. C. Wilson, of Philadelphia, said that in the German and Pennsylvania hospitals at every visit of the house physician, as a matter of routine, rigidity of the abdominal muscles was looked for. If they suspected rigidity of the right side or the right lower quadrant of the abdomen the attending physician was immediately called. If pain, especially when associated with rigidity, the patient was immediately removed to the operating room. His experience had led him to believe that perforation of the bowels was preceded by, in a considerable number of cases, hemorrhage, but seldom did they occur coincidentally.

THE MORTALITY AND MANAGEMENT OF PNEUMONIA.

Dr. Edward F. Wells, of Chicago, said that pneumonia was responsible for an annual morbidity of about 0.7%; a mortality rate of about 0.13% and it caused about 8.1% of all deaths. In New York there was an annual mortality of about 1.3 for 1,000 of the population in the decade 1804–1813, and rose to about 2.5% per 1,000 during the terminal decade of the century. He said that: (1) pneumonia was a very prevalent disease and its prevalence was increasing; (2) this increasing prevalence was probably due to the wider diffusion of the more vigorous strains of the pneumococcus, made possible by the increasing commingling of people; (3) the pneumococcus was to be found in the upper respiratory passages of a very large proportion of healthy persons, and it was the migration of these ever present germs into the pulmonary alveoli which caused pneumonia; (4) pneumonia was a very fatal disease and its mortality was increasing; (5) the increasing mortality was probably due to the greater average virulency of the pneumococcus. The following prophylactic measures were offered for consideration: (1)pneumonic sputum should be destroyed before it has become dry. (2) The nostrils, mouth and throat should be kept as clean as possible. Taking a drink of water after eating is a habit which should be formed and cultivated. (3) The room occupied by a pneumonic patient should be afterwards disinfected. Remaining unnecessarily in a room occupied by a pneumonic patient should be avoided. (4) Respiratory catarrhs should be avoided, and if contracted should be relieved. (5) Physical and mental exhaustion, privation, undue exposure to cold and inclement weather should be avoided. In the ordinary cases he supplemented the efforts of nature by giving during the first few hours only three to five drops of tincture of *Veratrum viride* every two or three hours until nausea had been produced or the initiatory violence of the attack had passed. To combat temperature he used the ice cap and the external application of fifteen to twenty drops of guiacol. Pulmonary edema was treated by energetic stimulation of the nervous system by strychnia, of the capillaries by adrenalin, and of the heart by small doses of morphia. Oxygen inhalations met his approval.

THE STUDY OF A SERIES OF CASES OF PNEUMONIA, WITH SPECIAL REFERENCE TO DIAGNOSIS AND COMPLICATIONS.

Dr. Joseph Sailer, of Philadelphia, read this paper. He based his study on 65 cases in the Philadelphia Hospital during the past winter. Nearly 40% were over sixty years of age and the mortality was correspondingly high. Thirty-five cases dying and 30 surviving. The distribution as determined by physical signs and confirmed where possible by autopsy was: left lower lobe alone 16, left upper lobe alone 2; right lower lobe 12, right upper lobe 13. In 5 cases a diagnosis was made of involvement of the right upper and middle lobes. The entire left lung was involved in 4 cases and the entire right lung in 3 cases. It had been asserted that leucocytosis rendered prognosis more favorable. In the cases that recovered there were less than 10,000 leucocytes in 3 cases and between 10,000 and 20,000 in 10 cases; between 20,000 and 30,000 in 5 cases; between 30,000 and 40,000 in 5 cases; between 40,000 and 50,000 in 1 case, and between 50,000 and 60,000 in 2 cases. Of the cases that died the leucocytes were: between 10,000 and 20,000 in 11 cases; between 20,000 and 30,000 in 4 cases; between 30,000 and 40,000 in 1 case and between 40,000 and 50,000 in 1 case. It does not appear that any definite conclusions could be drawn from the leucocyte count. The quantity of chlorides in the urine was not an indication of the subsequent course of the disease, but the comparison of the excretion of chlorides in pneumonia and in other febrile diseases had shown that in the latter states the reduction was comparatively insignificant and in pneumonia always considerable, so we could place the highest value upon it in the diagnosis of pneumonia. Of late years we had practically forgotten the importance placed upon Skoda's sign, the indeterminate or indefinite respiratory murmur characteristic of consolidation of the lung. Two forms of bronchial breathing could be distinguished to which the names of loud and faint could be given. The difference was one of degree. The faint bronchial breathing, although occurring more often in the early stages of the disease, was not by any means limited to the stage of congestion. Wooden tympany was only observed in 2 cases, herpes was observed 4 times, icterus 3 times. Feeble heart action and albuminuria were comparatively common. Profound cyanosis was present in 2 cases, and in 1 was temporarily relieved by venesection. If severe abdominal pain was present it was associated with tenderness in the hypochondrium on the same side as the pneumonia. This happened in 4 cases. The complications were numerous. Chronic nephritis usually of advanced type was found in 17 of 25 autopsies.

Pleurisy, either chronic or acute, was present in all cases. In 2 there was empyema, in 1 gangrene of the lung and in 2 acute fibrinous pericarditis, in 1 acute obliterative pericarditis and in 1 acute ulcerative endocarditis, and in 1 pneumococcus meningitis. In 4 cases tubercular lesions were present. The treatment consisted of expectant stimulation with occasional resort to hypodermoclysis. Ten cases were treated with anti-pneumococcic serum. These cases were selected, part being favorable subjects and part unfavorable. There were 3 deaths and 7 recoveries. Of the fatal cases one was distinctly unfavorable, and one practically moribund when the serum was used. Of the cases that recovered three were regarded as severe. On the whole, the results of the serum were regarded as distinctly encouraging.

DR. DELANCY ROCHESTER, of Buffalo, said that the disease should be treated and not the symptoms, and believed that if we get rid of the toxemia a great many of the symptoms would be got rid of. He approved early bleeding in asthenic cases, but he disapproved of the administration of opium in the beginning. He believed we could get rid of the poison by the proper use of laxatives, particularly calomel, and the proper use of cold. Getting rid of the poison of pneumonia by sweating was of great benefit. He approved of venesection in certain cases.

DR. BABCOCK, of Chicago, referred to the work of an Italian experimenter who attempted to demonstrate that pulmonary edema was not due to heart failure, but to the action of the pneumococcus infection upon the pulmonary alveoli. If blood pressure was low at the start he believed that *Veratrum viride* was contraindicated, and he protested against the use of cardiac depressants when the blood pressure was already low. Digitalis he believed to be of the greatest possible utility in the form of fresh infusion injected hypodermatically.

DR. S. SOLIS-COHEN, of Philadelphia, was firmly convinced that there were two times in the history of the cases of pneumonia when venesection might be employed, *viz.*, in the beginning of attacks; here he believed it reduced the toxemia; and secondly toward the end of the attack when the right heart was overloaded. The keynote of the successful treatment in this disease was individualization. He believed that patients with temperatures of 103, 104 or 105 gave a better prognosis than those with temperature of 100 to 101; the vital reaction seemed to be better in the latter.

APPENDICITIS FROM THE STANDPOINT OF A PHYSICIAN.

DR. S. G. BONNEY, of Denver, said that the responsibility of the physician in appendicitis was far greater than that of the surgeon, because early diagnosis was a factor of supreme importance and afforded solution of the problem as to time of operation. A report of selected illustrative cases from the author's personal experience was appended.

SUICIDE, WITH SOME ILLUSTRATIVE CASES.

DR. JOHN L. DAVIS, of Cincinnati, read this paper. He said that in twelve years there had been over 77,000 suicides recorded in the United States, the number increasing annually from about 3,500 in 1891 to 8,600 in 1903. The greatest number of suicides are credited to middle life. Our American strenuous life he believed to be having a disastrous result on the physical conditions of our people; they were becoming physically unbalanced, and this feverish intensity and eagerness to excel began almost at the cradle and ended only at the grave.

SECOND DAY, JUNE 8.

PATHOLOGY OF ARTERIOSCLEROSIS.

DR. WILLIAM H. WELCH, of Baltimore, opened the symposium on arteriosclerosis. He wished to emphasize the combining of the clinical, the pathological and the anatomical phases of the subject, and he thought that our knowledge would be much advanced by a combination of the work. The disease, arteriosclerosis, was recognized from the time that autopsies began to be made, and was recorded as early as the sixteenth century. A historical review of the subject here followed. He then considered the nature of the trouble as described by Keller and his students. In the cicatricial form of arteriosclerosis there seemed to be a peculiar localization, and it affected chiefly the thoracic arch, especially its ascending portion. It had but little tendency to extend into the large branches of the aorta or to extend down into the abdominal aorta. It was characterized markedly by changes in the adventitia and media, and also by furrows or scar-like depressions seen more particularly in the inner coat of the aorta. Associated with this were elevated plaques, many of which were not to be distinguished from true arteriosclerosis. Sometimes fibrous scar-like patches could be seen. Another type related to syphilis or syphilitic aortitis, so-called by Keller and students. There were at present three anatomical distinct affections that might occur separately, but which were more often combined with each other. Dr. Welch said there were the following forms to be considered: (1) That form with inflammatory thickening of the inner coat of the vessel resembling scar tissue. (2) That form called by some "true arteriosclerosis" and which naturally applied to a thickening of the intima and a splitting of the internal elastic membrane, or the elastic muscular coat, associated with marked degenerative changes, necrotic, fatty and hyaline degenerations. (3) That form of syphilis of the aorta already referred to. He asked if this hypertrophy was not a compensatory act, and a thing to be desired in the muscular coat of the arteries, as in the heart muscle. Experimentation did not shed much light upon the questions raised. The most important underlying cause was the functional strain upon the arteries. There was no question but that extensive arteriosclerosis was a disease without clinical symptoms or any effect upon organs. It was a matter of great importance to determine what were the conditions associated with arteriosclerosis which were responsible for the rise of arterial pressure and for the cardiac hypertrophy. This he considered to be the most important aspect of the subject. The rise of blood pressure was due to causes which led to arteriosclerosis, but not caused directly by it.

ARTERIOSCLEROSIS FROM ACUTE INFECTIOUS DISEASES.

DR. WILLIAM S. THAYER, of Baltimore, said that he was led to the consideration of this part of the symposium by observations on typhoid fever patients. Out of 62 autopsies in cases of typhoid fever, in 19 there were definite sclerotic changes made out, in 4 there were yellow opacities in the intima noted, and in 13 sclerotic changes which were early and fresh. The figures, together with a higher blood pressure than was noted in the control tables, lead him to feel that typhoid fever played some causal part in the thickening of the radial arteries. If that was true, typhoid fever, to a greater or less degree, caused this condition. Light might be thrown upon this by an analysis of the histories of a large number of cases in Dr. Osler's wards. A careful inquiry was made into the question of alcoholism, work, etc. The histories

gone over consecutively numbered 3,894, and they were examined (1) as regards the general presence of palpable radials; (2) in regard to the presence of palpable radials in cases with histories of diphtheria, scarlet fever, malaria, pneumonia, typhoid fever, acute rheumatism, syphilis, gonorrhea, alcoholism, and heavy work. The results obtained were shown by tables. Subdividing these cases into groups in which only one etiological factor was made out, the results were also shown by charts. Where no causal factor existed a general percentage of 18.9 was shown, and cases of diphtheria a slightly lower percentage, then pneumonia with 19.6, malaria 22.6, syphilis 23, scarlet fever with 24, diphtheria with 28.7, rheumatism 41, alcoholism 53.3 and heavy work 62.2. So far he was not justified in drawing any conclusions that acute infectious diseases played a part in the development of arteriosclerosis. The part played by physical labor in the production of arteriosclerosis seemed to be far greater than that played by alcoholism.

ARTERIOSCLEROSIS OF SYPHILITIC ORIGIN.

Dr. C. Travis Drennen, of Hot Springs, said that though there was a connection between arteriosclerosis and syphilis, the connection was obscure. The routine method adopted by the profession at large in the treatment of syphilis he believed was responsible for the production of arteriosclerosis, and the tendency of the disease itself was to produce sclerosis in various organs. He entered a plea for a more rational treatment of syphilis that would lessen the danger of mercury and the iodides and at the same time possibly eliminate the treatment of syphilis as a causative factor in the production of arteriosclerosis.

ARTERIOSCLEROSIS OF NEPHRITIC ORIGIN.

Dr. George Dock, of Ann Arbor, Mich., presented this paper. He said that doubtless in many cases arteriosclerosis was caused by nephritis, and it was of great clinical importance that the kidney lesion might be severe yet latent, often developing symptoms severe enough to cause death. He called attention to the value of clinical study and the recognition of the importance of hyperdistention in causing vascular disease; as the presence of this condition in acute nephritis might lead to disease of the intima, followed by compensatory, and later by degenerative, changes. He cited the case of a boy of fifteen suffering from acute nephritis which terminated in death, during one of several attacks of uremia. The object of his paper was to assert the possibility of renal diseases of all kinds assisting in the production of arterial disease, and to plead for a more extensive clinical investigation in order to show the extent and, if possible, the explanation.

ARTERIOSCLEROSIS DUE TO LEAD.

Dr. Frank Billings, of Chicago, said that the mode of entrance of lead into the body was very easy, and he instanced a case of poisoning from washing the clothes of a man whose occupation was a painter. Regarding the effect of lead upon the blood and other tissues, he said it probably was direct. As the blood circulated, the poison might act directly upon the cells of the vessel wall and produce a proliferative endarteritis. This was associated with degenerative processes of the media and thickening of it, and especially a degeneration of the muscular coat with proliferation and thickening. The effect upon the elastic coat he did not know. There was also an interstitial thickening of the outer covering which was widespread. There was also caused a chronic degeneration of the kidney substance and resulting cirrhosis of the kidney with well-known fibroid changes and hypertrophy of the muscular coat of the arteries. The effect was upon the cells, tubules and glomeruli and blood vessels. In a large number of cases brought to autopsy with nephritis a very large proportion of them was associated with lead. Lead predisposed to gout, and it was well known that arteriosclerosis was common in gout. A diagnosis could not be made, except in cases where the nature of the cause was found.

THE SIGNIFICANCE OF ALCOHOL IN RELATION TO ARTERIOSCLEROSIS.

Dr. Richard C. Cabot, of Boston, in his review of literature on this subject, has found that most standard textbooks assert unconditionally the importance of the excessive use of alcoholic liquors as a causative factor in the production of this disease. His clinical research showed that of 283 cases investigated at the Massachusetts General Hospital, only 18 or 6% showed arterial sclerosis so far as examination of the heart and peripheral vessels gave evidence. This was to the exclusion of those over fifty years of age and those who had syphilis. Excluding those of forty years, the percentage would fall to 1.4%. Similar investigations at the Massachusetts Hospital for Inebriates and at the Long Island Hospital showed that alcoholism had a very slight influence in the causation of the condition. Post-mortem evidence gathered at the Massachusetts General Hospital gave similar results, *i. e.*, that the alcoholic origin of arteriosclerosis was a myth.

ARTERIOSCLEROSIS AND ANGINA PECTORIS.

Dr. William Osler, of Baltimore, said that there were many things doubtful about angina pectoris, and that it was associated with arteriosclerosis was shown by Edward Jenner in post-mortems he made. It had been demonstrated in a large number of post-mortems since then, and there was no question about its association in a very considerable number of cases. With regard to the attacks of pain there were a great many interesting points in this connection. Arteriosclerosis of the blood vessels of the head produced attacks of severe pain associated with migraine. Severe recurring headaches might be seen in connection with embolism and thrombosis. In sclerosis of the abdominal vessels severe pain was rarely met with, yet there were cases of angina pectoris in which the pain was almost entirely abdominal, and might even be mistaken for hyperacidity; such cases might be termed "angina abdominis." Interesting conditions were shown in the lower extremities; cases of numbness and tingling of the extremities were met with in old people, in diabetes and Bright's disease, and this was due to senile arteriosclerosis. Pain caused by plugging of the femoral artery was marked, and there was also pain in thrombosis of the veins in typhoid fever. In old persons attacked with very great pain, with cramps in the muscles, it seemed to deserve the name "angina cruris." Dr. Osler said that there seemed to be four groups of cases as follows: (1) Those in which the angina attacks were definite, distinct and severe in young persons, a neurotic process recurring over long periods of years, terminating fatally, and in which the arteries show no sclerosis whatever. (2) Those cases in which the angina pectoris was associated with syphilitic arteriosclerosis. These were amenable to treatment, occurred in young men, with signs of cardiac lesions, frequently aortic insufficiency, but with evidences of syphilis, definite and distinct. He wished to emphasize the importance of syphilis in producing a distinct type of aortitis. (3) A large group of cases occurring in the pre-senile,

between the ages of forty and sixty. (4) A group of cases occurring between the ages of sixty and eighty and a very important group.

TREATMENT OF ARTERIOSCLEROSIS.

DR. JAMES N. ANDERS, of Philadelphia, said that he had subdivided the cases into etiological categories as follows: (1) Those due to toxic agencies in the blood, *e. g.*, in chronic alcoholism, lead poisoning, diabetes mellitus, syphilis, gout, rheumatism, and other infectious diseases; (2) arteriosclerosis caused by the constant ingestion of an excess of either the carbohydrates or nitrogenous food; (3) cases dependent upon constant hypertension, due to muscular over-exercise, as in certain laborious occupations and violent competitive sports.

Prophylaxis. — He emphasized the importance in early life with reference to competitive efforts in athletics. The maintenance of a complete nutritive equilibrium was a potent means of preventing pathological processes which led to arterial changes. In gouty subjects nothing was so vitally important as a suitable diet and régime. There was, however, no special diet suitable for all cases of gout, no dietetic rules universally applicable. A suitable and considerable restriction in the amount of food was the prime requisite. Such subjects should adopt an open air life coupled with regular systematic muscular exercise. By remembering the principal causes of arteriosclerosis it was clear that by a proper regulation of the séances, massage became a most useful means of prophylaxis, and exercise of beneficial influence upon the glandular secretions and the nervous system as well as upon the vascular system. Warm baths were serviceable in lowering the tension of both the arteries and veins.

It might be seriously doubted whether the disease was ever arrested by medicine; however, we might retard its progress to some extent and restore the normal rapidity of the blood current and lower the blood pressure by dilating the arterioles. The remedies employed for this purpose were nitroglycerin, the nitrites and potassium iodide. Except in cases due to syphilis the results obtained by the use of iodides were in no wise comparable in brilliancy to those obtained by following the careful application of hygienic measures and the use of nitrites. The iodides were called for and had been shown to be of decided value in cases showing a luetic taint. Sphygmographic tracings indicated the results of nitrites and nitroglycerin. The result of these studies made clear the difference in conditions described under the title of arteriosclerosis. The blood pressure was not materially increased in many cases dependent upon senile degeneration, chronic diabetes and certain toxemias. The nitrites were strongly indicated and most effective in that category of cases in which there was an early and marked increase in arterial pressure, and the heart was hypertrophied.

DR. ALFRED STENGEL, of Philadelphia, said that if we wished to accomplish anything in the treatment of arteriosclerosis, especially its consequences, it should be done in the early stages of the disease and, therefore, greater efforts should be made in the direction of diagnosis and its etiology. He felt convinced that alcohol was a very important cause. He was much surprised at a recent meeting of the British Medical Association, in hearing the statement made that the convalescence of typhoid fever should take from one year to eighteen months, and the more he saw of the end results of typhoid fever the more he believed in the truth of this statement. After having had the disease, it was necessary to direct avoidance of strains of any kind until long after.

MULTIPLICITY OF CAUSES.

DR. FRED'K C. SHATTUCK, of Boston, referred to the multiplicity of causes of arteriosclerosis. It seemed to him that the carrying of responsibilities, such as by the captains of industry — men who carry great strain, etc., the men from whom we could not get statistics — that this weight carrying he could not but believe was one of the causes of arteriosclerosis through defective metabolism. There is a high arterial tension in these people, and if you add to that alcoholism, what is the result? The biggest alcohol drinkers in the country who still maintain good health were not the men who lead strenuous lives. In Canada the life was a hard one; the Scotch and the Scandinavians were enormous consumers of alcohol; the Scotch lead intelligent lives, yet not the high tension life as in this country. It was a notorious fact that a man cannot use alcohol here as in Europe. All this seemed to show that there was an extreme complexity of problems with which we were dealing.

DR. WM. KRAUS, of Memphis, Tenn., said that the anatomical classification of the disease was fraught with difficulty. The etiological feature of this disease seemed to be associated with the circulation of toxins in the system and with degeneration in solid organs. Primary degeneration was not so much the result of increased pressure or pathological change as the circulating toxins in the outer coats. With regard to malarial fever, it must be very severe and characterized by long duration before it produced arteriosclerosis. In all cases he found changes in the kidney, and in the severe malarial fever there was usually associated albuminuria. He referred to the instance of a man who twenty-four or twenty-five years ago had suppression of the urine, and to-day this man could not drink alcohol without raising the blood pressure so much as to cause throbbing of the temples.

DR. CHAS. G. STOCKTON, of Buffalo, spoke of the appearance of pain in the abdomen depending upon arteriosclerosis and which was often not even suspected. Instead of using the ordinary warm baths he thought better results were obtained from short hot or vapor baths which had as good effect in opening the capillary vessels. When the nitrites or nitroglycerin was given and it was desired to have a constant and uniform effect, it should be given more frequently. Without the use of the iodides he did not think we would have favorable results in the treatment.

DR. S. J. MELTZER, of New York, assumed that he was not wrong in stating that local causes could cause local arteriosclerosis. In referring to Dr. Cabot's remarks, he said the peripheral arteries only were examined, but the splanchnic area was not examined, and he did not think that Dr. Cabot should draw the conclusions he did without examination of this area. Alcohol in health is sometimes a curse, but alcohol in disease was often a blessing.

DR. BABCOCK, of Chicago, did not think that we should attribute special etiological influence to any one factor in the production of arteriosclerosis. He thought we should consider the form in which alcohol was consumed. The Germans were in the habit of consuming many quarts, 25 to 30 liters of beer a day, and he believed that in dealing with these individuals we must consider not merely the fact that alcohol had been taken, but other factors such as the excessive amounts of fluids consumed and the nutritive material, such as contained in beer.

(To be continued.)

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DR. OSLER ON IMMORTALITY.

We have come to look upon Dr. Osler as the representative of medicine in many and diverse fields; it therefore occasioned no great surprise that he was chosen as this year's Ingersoll Lecturer at Harvard University, the terms of the foundation requiring a discussion of the general subject of immortality. Difficult as such a task must be under any circumstances, it was rendered the more exacting from the fact that the matter had already been treated from many points of view and with much skill and close reasoning by his predecessors in the lectureship, — Rev. George A. Gordon, Prof. William James, Pres. Benjamin Ide Wheeler, Prof. Josiah Royce and Mr. John Fiske. These gentlemen had discussed the subject from the religious, psychological, historical, metaphysical and evolutionary points of view, and it remained for Dr. Osler to interpret the present-day attitude towards the problem, as observed by a representative of applied science. Such an opportunity has seldom been offered to a physician primarily engaged, according to the popular conception, in matters pertaining to the flesh, but that he should have a point of view bred of experience and contact with the gravest problems of life is certainly not extraordinary. It was, therefore, not a source of surprise that Dr. Osler acquitted himself of his task in a most entertaining, suggestive and weighty fashion.

The immediate subject of the lecture was "Science and Immortality," and at no time did he transgress the limitations which he had set himself in the title. Religious conceptions, as such, did not enter into the discussion, nor did the temptation of metaphysical speculation distract him from his object, of stating, with the accuracy of a man of science, the facts of observation which bore upon the question of life after death. Admitting as he did that the methods of science, as hitherto developed, had small significance when applied to supra-sensual phenomena of whatever sort, he still found opportunity to make a critical analysis of prevailing tendencies, and finally, no doubt to the gratification of the audience, to formulate in a measure his own confession of faith.

At the outset of his discourse, after modestly disclaiming his fitness for the task he had undertaken, he drew attention to the fact that science has changed the aspect of the world, through its control of physical energies, through the biological revolution it has wrought, and, finally, by making a good start in the warfare against disease. These were the three great achievements of the nineteenth century. Admitting this, the following query is presented: Has man's conquest of nature made man more or less hopeful of a future life? This the lecturer attempted to answer in a purely objective fashion, and certainly with a large measure of success. The great majority of men, Dr. Osler finds, are uninfluenced by a belief in immortality, though uncritically accepting the popular attitude in the matter. Even in many religions, as well as in our own daily lives, the belief in immortality as a controlling influence is vague. It is ominous that the press is absolutely silent on the subject, and the doctrine of a future life has been uninfluential in the great movements of the world. Usually a man dies as he has lived, and the thought of a future life plays no part in his last hours. On this point Dr. Osler said: "I have careful records of about five hundred death beds, studied particularly with reference to the modes of death and the sensations of the dying. What concerns us here relates only to the latter. Ninety suffered bodily pain or distress of one sort or another, eleven showed mental apprehension, two positive terror, one expressed spiritual exaltation, one, bitter remorse. The great majority gave no sign one way or the other; "like their birth, their death was a sleep and a forgetting."

A second group of more thoughtful men puts the problem aside, as in doubt or unsolvable, and leaves the question open. Such was Darwin's frame of mind, and, in fact, such is the usual attitude of investigators in the physical and natural sciences. Evolution and the modern psychology find the "soul" superfluous. The insistence on the mind as a function of the brain

has naturally led to the doubt of the possibility of the existence of consciousness apart from a material basis. Hitherto, the search for the spirits has been futile, but the methods of the Society for Psychical Research should be endorsed, since, after all, there is no inherent reason why there may not be a supra-sensual world of spirits just as there is a vast range of activities going on wholly beneath the level of our conscious life. The general tendency of science has, however, distinctly been to lay stress upon the immortality of the flesh, through the continuity of the germ-plasm, and to minimize to the last degree the importance of man, as an individual.

Up to this point, those of his listeners who came in the expectation that Dr. Osler had some message of hope must have been grievously disappointed. A more gloomy picture of the destinies of human life drawn in more forceful and picturesque language could hardly be imagined. No doubt, many in the audience experienced a certain sense of relief, when he alluded to the third group of believers, a small group, but one which cannot be ignored, which sways the minds of men through an appeal to the heart rather than to the head. To-day as always the heart controls, and reason is not king, however eager the effort may be to raise it to that position. Women, who largely constitute this group, are pre-eminent, because they are the incarnation of the emotional — an element which must be considered in the daily conduct of our lives. The ardent belief in a future life rests now, as it has in the past, in the safe-keeping of this relatively small but always influential band of the faithful. Science is organized knowledge, and of the unseen it has absolutely no knowledge.

Finally, Dr. Osler, in giving a word of advice to young men, assented as his own confession of faith to the dictum of Cicero, "who had rather be mistaken with Plato than be right with those who deny altogether the life after death."

Such an address does not lend itself to extended comment within the limited space of these columns, but we are convinced the ultimate verdict will be that the lecture embodies a point of view of deep significance. Certain unimaginative critics have complained that it proved nothing and that it lacked originality. Both are no doubt true, and we heartily return thanks to Dr. Osler that the temptation to forestall such a critisiem did not present itself as a possibility. The address was merely a restatement in peculiarly lucid language of the standpoint of a liberally-minded man toward a problem of great import to the human race at large. Its aim was modest and its result correspondingly satisfactory. The suggestion to the men of science as a class is stated in no uncertain language, and herein to our mind lies the kernel of the entire discourse. The peculiarly aggravating tendency to deny what cannot be proved by the methods of so-called exact science is certainly a stumbling-block in the way of progress. The belief in immortality stands as one among many such skepticisms. Of this, Dr. Osler says: "The scientific student should be ready to acknowledge the value of a belief in the hereafter as an asset in human life."

THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCES.

THE International Congress of Arts and Sciences to be held at St. Louis in connection with the International Exposition has issued its programme and list of speakers. The time assigned to the congress is from Sept. 19 to 25. The announcement of the purpose and plan of the congress states that:

The idea of holding such a congress grew out of the thought that the subdivision and multiplication of specialties in science has reached a stage at which investigators and scholars may derive both inspiration and profit from a general survey of the various fields of learning, planned with a view of bringing the scattered sciences into closer mutual relations. The central purpose is the unification of knowledge, an effort toward which seems appropriate on an occasion when the nations bring together an exhibit of their arts and industries. An assemblage is therefore to be convened at which leading representatives of theoretical and applied science shall set forth those general principles and fundamental conceptions which connect groups of sciences, review the historical development of special sciences, show their mutual relations and discuss their present problems.

The speakers to treat the various themes are selected in advance from the European and American continents. The discussions will be arranged on the following general plan:

After the opening of the congress on Monday afternoon, Sept. 19, will follow, on Tuesday forenoon, addresses on main divisions of science and its applications, the general theme being the unification of each of the fields treated. These will be followed by two addresses on each of the twenty-four great departments of knowledge. The theme of one address in each case will be the "Fundamental Conceptions and Methods," while the other will set forth the progress during the last century. The preceding addresses will be delivered by Americans, making the work of

the first two days the contribution of American scholars.

On the third day, with the opening of the sections, the international work will begin. About one hundred and twenty-eight sectional meetings will be held on the four remaining days of the Congress, at each of which two papers will be read, the theme of one being suggested by the relations of the special branch treated to other branches; the other by its present problems. Three hours will be devoted to each sectional meeting, thus enabling each hearer to attend eight such meetings, if he so desires. The program is so arranged that related subjects will be treated, as far as possible, at different times. The length of the principal addresses being limited to forty-five minutes each, there will remain at least one hour for five or six brief communications to each section. The addresses in each department will be collected and published in a special volume.

The officers of the congress are: President, Simon Newcomb of Washington; Vice-Presidents, Hugo Muensterberg, Professor of Psychology in Harvard University, and Albion W. Small, Professor of Sociology in Chicago University.

The subjects to be considered are classified under divisions from A to G inclusive; these divisions are subdivided into 24 departments, and each of these departments is again subdivided into sections, of which it is planned to have about 128.

Department 17 devoted to medicine is the first subdivision under division E, that of Utilitarian Sciences. This department of medicine is divided into 12 sections: (*a*) Public Health. (*b*) Preventive Medicine, (*c*) Pathology, (*d*) Therapeutics and Pharmacology, (*e*) Internal Medicine, (*f*) Neurology, (*g*) Psychiatry, (*h*) Surgery, (*i*) Gynecology, (*j*) Ophthalmology, (*k*) Otology and Laryngology, (*l*) Pediatrics.

The officers of the department of medicine are as follows: Chairman, Dr. William Osler; speakers, Drs. William T. Councilman and Frank Billings; section (*a*) Chairman, Surg.-Gen. Walter Wyman, U. S. Marine Hospital, speakers, Prof. William T. Sedgwick and Dr. Ernst J. Lederle; (*b*) Chairman, Dr. Joseph M. Mathews, speakers, Profs. Ronald Ross, F.R.S., Liverpool, and Angelo Celli, Rome; (*c*) Chairman, Prof. Simon Flexner, speakers, Prof. Felix Marchand, Leipzig, and Johannes Orth, Berlin; (*d*) Chairman, Dr. Hobart A. Hare, speakers, Sir Lauder Brunton, F.R.S., London, and Prof. Mathias E. O. Liebreich, Berlin; (*e*) Chairman, Prof. Frederick C. Shattuck, speakers, Prof. Clifford Allbutt, F.R.S., Cambridge, and William S. Thayer; (*i*) Chairman, Prof. Lewellys F. Barker, speakers, Profs. Shibasaburo Kitasato, Tokio, and James J. Putnam; (*g*) Chairman, Dr. Edward Cowles, speakers, Prof. Th. Ziehen, Berlin, and Dr. Charles L. Dana; (*h*) Chairman, Prof. Carl Beck, speaker, Prof. Nicholas Senn; (*i*) Chairman, Prof. Howard A. Kelly, speakers, Dr. L. Gustave Richelot, Paris, and Prof. John C. Webster; (*j*) Chairman, Dr. George C. Harlan, speaker, Dr. Edward Jackson; (*k*) Chairman, Prof. William C. Glasgow, speakers, Sir Felix Semon, C.V.O., London, and Dr. J. Solis-Cohen; (*l*) Chairman, Prof. Thomas M. Rotch, speakers, Profs. Theodore Escherich, Vienna, and Abraham Jacobi.

The hope is expressed that the names of the speakers and chairmen to be found in this announcement will form a nucleus for bringing together thousands of other interested scholars who sympathize with the efforts to bring unity into the world of knowledge.

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

The first volume of the "Studies from the Rockefeller Institute for Medical Research" has recently appeared in the form of reprints bound in a common volume. It will be remembered that the Rockefeller Institute for Medical Research was founded in 1901 for the purpose of stimulating original research. During the earlier period of its existence, while the organization was being perfected, it was determined to employ such funds as were available in aiding research already begun and encouraging new investigations. The actual result of the plan is shown by these papers now gathered together into a pamphlet of considerable size. In all, twenty-seven researches are published on a variety of subjects of scientific interest. Among others the names of Herter, A. C. Abbott, Preston Kyes, Meltzer and Theobald Smith appear as contributors. We have no desire to question the wisdom of publication in this form. It would, however, appear on the surface desirable to produce such communications in uniform type and paper, which naturally is not possible under the present mode of publication. The papers themselves are certainly worthy of a somewhat more dignified form than they have been given in this volume.

MEDICAL NOTES.

Meeting of the American Medical Association. — The meeting of the American Medical Association, recently held at Atlantic City, has been one of the most successful in its history. The new plan of organization has had the expected effect of bringing order out of what

threatened at times to be chaos, and thereby has led to better accomplishment than ever before. Registration was unusually large and attendance at meetings excellent. For obvious reasons Atlantic City has again proved itself a highly suitable place of meeting.

HYDROPHOBIA IN CHICAGO. — A recent bulletin of the Chicago health department states that a considerable number of cases of hydrophobia have recently occurred in the city. It is urged that attention should be given to the matter and that all dogs should be muzzled, for the safety of the public as well as of the dogs themselves.

LEPROSY. — In the report on leprosy in New South Wales for the year 1902, just published, it is stated that distribution of leprosy under nationalities is as follows: Natives of New South Wales, 21, of whom 15 have died and 2 were released; of Queensland, 1, deceased; of England, 4, of whom 3 have died; of Ireland, 2, deceased; of New Zealand, 1, deceased; of Fiji, 1, deceased; of Germany, 2, of whom 1 has died; of Belgium, 1, deceased; of the United States of America, 1; and all of these were whites, of European descent. There were also 37 natives of China, of whom 13 have died, and 21 have been returned to their own country; of India, 2, deceased; of the West Indies, 1, discharged in 1885; of Java, 1; of Tanna (New Hebrides), 1, deceased; of New Caledonia, 1, deceased; of Aoba (New Hebrides), 1, returned to his island; and all of these were colored people.

FOURTH PAN-AMERICAN MEDICAL CONGRESS.— The next meeting of the Pan-American Congress will be held in Panama the latter part of December.

The Pan-American Congress meets every three years. It was started by Dr. William Pepper of Philadelphia, Dr. C. A. L. Reed of Cincinnati, Dr. Albert Van der Veer of Albany, and Dr. H. L. E. Johnson of Washington. The first meeting was held in Washington in September, 1893, the second in Mexico in 1896. The third was to have been held in Venezuela in 1899, but was given up on account of the war in that country. The place of meeting was changed to Cuba, but had to be postponed until 1901 on account of the fever there.

These meetings have always been well attended and it is thought that Panama will be an interesting place for the convention.

Further particulars will be given from time to time, together with notifications of the different officers appointed to represent this and other countries.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 15, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 52, scarlatina 9, typhoid fever 4, measles 72, smallpox 0.

Correspondence.

DIE BEDEUTUNG DER LUMBALPUNKTION FUR DIE PSYCHIATRIE, VON PROF. NISSL (HEIDELBERG).

PROVIDENCE, R. I., JUNE 5, 1904.

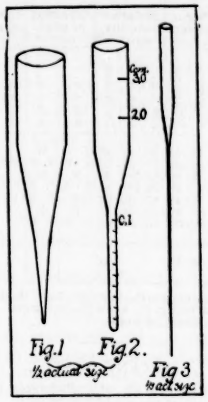
MR. EDITOR: Under the above title there appears in the April number of the *Centralblatt fur Nervenheilkunde und Psychiatrie* an unusually timely and important article which deserves a full review.

The *technique* of the puncture as performed by Nissl varies in no radical way from that already described in many recent publications and commonly used wherever this procedure is adopted. The *examination of the fluid* includes cytological, bacterial, physical and chemical analysis, and the pressure under which the flow appears is also of significance. Nissl has not as yet carried on bacteriological investigation. Independently of the cellular constituents the *physical appearance* of the fluid is of interest. In one case of tubercular meningitis, although the red cells were not abnormally increased in number, the fluid had a decidedly yellowish tinge. In one case of purulent meningitis abundant fibrin appeared. As to the *pressure*, the author does not doubt that there is a significance, but he is not sure of our ability correctly to interpret it. Slight changes in manipulation alter the character of the flow, and he has not in his own cases used instruments of precision for determining the exact pressure.

The *chemical experiments* dealt entirely with the albumin group, sugar and other substances being disregarded. *Guillain's and Parant's* test with concentrated magnesium sulphate solution was used in the first fifty-eight punctures. In these, without exception, the fluid remained, after the addition of the sulphate, as clear as water. But when the mixture was boiled the filtrate from the fluid of seventeen cases of paresis, included in the above number, assumed, without exception, a more or less positive opalescence, or even turbidity. With the exception of the cases of meningitis and two cases of syphilis the reaction in the remaining cases was negative. Attention is called, however, to the fact that the reaction after boiling the filtrate with magnesium sulphate is often a light one, and it is difficult to say whether the fluid is clear or somewhat opalescent. After conferring with Professor Cohnheim, concentrated ammonium sulphate was substituted for the magnesium sulphate in all following punctures. The fluid was mixed with ammonium sulphate solution in equal parts. Globulin was separated while the solution was cold, and the filtrate acidulated with acetic acid was boiled. This method proved to be much more convenient. With this test coagulable albumin is found in normal cerebrospinal fluid. But in one hundred and fifty-eight tests only four times was there an unquestionable opalescence after the ammonium sulphate was added in the cold, and these four cases all belonged to general paresis. But in other cases of paresis the solution remained clear before boiling. In most cases of paresis the clouding is so considerable after boiling that there is no doubt as to the pathological increase of the albumin group.

To estimate the total quantity of albumin the following simple method was followed: A glass vessel of something over 3 cm. capacity was used which narrows down gradually to a tube closed at the end and divided into 0.01 ccm. There are ten divisions on the scale. The divisions are sufficiently separate so that fractions can be easily estimated. Fig. 2 represents such a vessel. Two cubic centimeters of centrifuged fluid is placed in this vessel

with the pipette; then 1 ccm. of Esbach's reagent is added and the air is driven out of the tube by means of a fine glass thread. The fluid is then centrifuged for an hour.



The amount of albumin is then easily read off. The method is not claimed to be exact, but, according to Cohnheim, is sufficiently so for practical purposes. The method was used in 90 punctures. An amount of albumin of less than two divisions was considered as within the normal limits. In normal cases it was generally found to be below the second division, but in no normal case below the first. The results were as follows:

The clinically clear cases of general paresis, 4.2, 4.2, 3.8, 4.2, 4.5, 3.5, 8.0, 3.9, 4.0, 4.0, 3.6, 5.0, 3.5, 4.0, 3.8, 3.8, 6.0, 3.2, 4.0; arterial-sclerotic dementia, 4.0; senile dementia, 1.5, 1.2, 1.2; epilepsy, 1.5, 1.0; manic-depressive insanity, 1.5, 1.5, 2.2, 1.2; traumatic hysteria, 1.5; melancholia, 1.8; aphasia (apoplexy), 3.0; choreic insanity, 1.5; imbecility, 3.1, 2.0, 1.0; dementia precox group, 1.4, 1.9, 3.2, 2.0, 1.6, 1.5, 1.3, 1.5, 1.5, 1.2, 1.2, 1.6, 1.9, 1.2, 1.8, 2.2, 1.5, 2.5, 1.2, 1.8, 3.5, 1.6, 1.5, 1.8, 2.0, 2.8, 3.0, 2.0, 2.5, 2.2, 1.8, 3.0, 2.0, 2.0; cases clinically not clear, 2.6, 2.8, 5.2, 2.2 and 1.9, 3.0 and 3.0, 7.0 and 9.0, 2.1. Groups of so-called functional psychoses with negative cytological findings, 1.5, 1.6, 2.8, 1.6. With positive cytological findings, 1.8, 1.3. Normal individuals, 1.8.

While the amount of albumin is undoubtedly of diagnostic value, it is to be noted that the cytological analysis and that of the albumin did not always run parallel. Frequently, strong increase of albumin occurred with negative cytological findings, while a normal percentage of albumin was only once found with positive cytological findings with numerous cellular elements. From a diagnostic standpoint the *cytological examination* is considered by Nissl to be the most important. In this matter it is of greatest importance that a definite technique should be followed so that the results of various investigators may be correlated.

The technique followed by other authorities is described, and certain apparently just criticism is made to which the author adds that, while it is easy to criticise it is difficult to formulate a better technique. Ravaut distinguishes: (1) The large reaction when 20–150 and more cellular elements lie in a single oil immersion visual field. (2) Medium reaction with 7–20 lymphocytes. (3) Appreciable reaction ("*Réaction discrète*") with 4–6 leucocytes, and (4) negative reaction when only 2 or 3, or 0 lymphocytes, are seen in each field. Nissl is dissatisfied with this division, inasmuch as the sources of error in technique may invalidate the "*Réaction discrète*." Practical distinctions are: One positive finding with very numerous cellular elements (as in most cases of paresis), another such with a few, but certainly increased, number of cells, a negative finding with perhaps more than the normal number of elements and, finally, the completely negative finding.

The glasses for the reception of the fluid are made by the author himself. (See Fig. 1.) Each glass is used but once, likewise the pipette is made by him and used but once. The water power centrifuge is used for three quarters of an hour. The centrifuged fluid is then carefully poured into a clean reagent glass and is used for chemical analysis. The glass from which the fluid is poured should not again be placed in the upright position. The welded end of the capillary tube is now broken off squarely and smoothly. When all of the fluid is drained from the glass the capillary tube is thrust down to the very bottom of the tubular portion of the glass without touching the wall. It sucks up for itself the minute particles at the bottom, and the contents of the pipette are then again carefully blown back into the glass so as to bring about as good as possible a mixture of the elements. This is to be so manipulated that the instant the blowing out ceases the sediment will be of itself again sucked up. If all has been correctly performed the sucked-up column of fluid should measure but 2½–3 cm. Now the contents of the pipette are gradually expelled upon three object slides in such a way that on each one is a regular, sharply outlined drop of about 2 mm. in diameter. Squirting of the fluid from the pipette should be carefully avoided. The drop is dried in the air. The slide submerged in alcohol and ether in equal parts for one half hour. Specimen can be stained as desired. If Unna's polychromatic methyl blue is used, a drop of the color is allowed to stand for ten minutes over the specimen which is then rinsed with water, subjected to alcohol, carbol-xylol, xylol, balsam, and finally covered with a cover slide. The specimen is first examined with a low power lens (Zeiss A) and the field controlled with oil immersion.

Nissl made 218 punctures on 166 individuals. The reader must be referred to the original article for a detailed description of the findings, which are there fully discussed and clearly tabulated. At the top of the tabulated results, however, appear the figures for paresis, and these may be given. Out of sixty punctures on twenty-eight clinically pure cases of paresis very numerous mononuclear cells were found fifty-six times, a few mononuclear cells found in two cases, numerous polynuclear leucocytes in one case, and an absolutely negative result in one case. In this negative case twenty days after the puncture a second puncture gave a definite positive result though with fewer lymphocytes than in most cases of paresis.

The number of recognizable cellular elements varies from time to time even in the fluid from paretics, and therefore in any case in which paresis is thought of and the first puncture is negative, it should be repeated a second and third time after long intervals. For the differential diagnosis between paresis and other diseases, (*e. g.*, in the doubt which frequently arises between paresis and certain forms of chronic alcoholism), the reader must be referred to the text where this question is fully discussed.

Histories of twenty-three cases are given in the text in which the punctures presented unusual interest because of peculiar clinical symptoms, or combinations of symptoms, or of difficulties in the way of a sure clinical diagnosis.

The author considers at some length the conclusions which we are warranted in drawing from the results of our punctures in our present state of knowledge of the pathological conditions underlying the various diseases in which the operation finds application. He summarizes with fair minded caution the whole present status of puncture and its relations to psychiatry and makes many valuable suggestions as to procedures by which we may enlarge the diagnostic value of lumbar puncture especially by histopathological analysis of meninges, choroid plexus, etc., in connection with experiments on living animals and subsequent histological examination. He brings up also several questions as to the medico-legal relations of lumbar puncture and the ethical rules involved.

The importance to the whole world of such an article by such an author as Nissl warrants this lengthy though not exhaustive review, and if space were afforded the reviewer would gladly have translated literally the whole of this unusually interesting and complete contribution.

WM. MCDONALD, JR.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JUNE 4, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Cerebro-Spinal Meningitis.	Typhoid Fever.
New York . .	3,908,644	1,265	398	31.14	14.62	4.03	4.98	.47
Chicago . . .	2,021,086	452	93	24.55	14.82	1.10	—	1.76
Philadelphia	1,407,968	465	120	31.39	10.75	1.93	—	4.08
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	177	41	25.42	10.17	.56	.56	3.39
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	122	—	31.14	7.38	1.64	2.46	11.47
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	48	18	20.83	8.33	—	—	—
Boston . . .	617,950	206	50	21.35	10.19	1.94	.97	—
Worcester . .	136,925	28	6	3.57	7.14	—	—	—
Fall River . .	119,349	23	8	17.39	4.35	—	—	—
Lowell . . .	104,402	30	9	16.67	20.00	—	—	3.33
Cambridge . .	100,998	17	4	17.54	—	—	5.88	—
Lynn	73,875	15	5	6.67	—	6.67	—	—
Lawrence . .	72,348	23	8	21.74	8.70	—	—	—
Springfield .	72,020	12	2	—	8.33	—	—	—
Somerville .	70,413	12	2	33.33	8.33	—	—	—
New Bedford	68,863	24	7	31.33	8.33	4.16	—	8.33
Holyoke . .	50,538	10	1	30.00	10.00	—	—	—
Brockton . .	46,601	9	2	22.22	11.11	—	11.11	—
Newton . . .	39,310	7	1	—	—	—	—	—
Haverhill . .	39,061	9	1	11.11	11.11	—	11.11	—
Malden . . .	37,205	4	—	—	—	—	—	—
Salem	37,188	11	3	9.09	—	—	—	—
Chelsea . . .	36,499	6	2	16.67	33.33	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	—	—	—	—	—	—	—
Everett . . .	30,209	4	1	—	—	—	—	—
North Adams	29,201	4	2	—	50.00	—	—	—
Quincy	26,798	5	1	20.00	—	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	8	1	25.00	25.00	—	—	—
Brookline . .	23,576	4	—	—	—	—	—	—
Pittsfield . .	22,870	6	2	16.67	—	—	—	—
Medford . .	21,956	2	1	—	—	—	—	—
Chicopee . .	21,692	5	1	20.00	—	—	—	—
Northampton	20,314	8	5	—	—	—	—	—
Beverly . . .	15,807	3	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	6	3	16.67	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	2	0	—	—	—	—	—
Newburyport	14,478	3	1	—	—	—	—	—
Woburn . . .	14,315	4	1	50.00	25.00	—	—	—
Melrose . . .	13,819	2	—	—	50.00	—	—	—
Westfield . .	13,809	1	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	—	—	—	—	—
Revere . . .	13,609	2	2	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	2	1	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	2	0	100.00	—	50.00	—	—
Weymouth .	11,350	2	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,052; under five years of age, 803; principal infectious diseases (smallpox, measles, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 838; acute lung diseases 380, consumption 413, scarlet fever 39, whooping cough 9, cerebrospinal meningitis 73, smallpox 6, erysipelas 10, puerperal fever 9, measles 31, typhoid fever 56, diarrheal diseases 116, diphtheria and croup 75.

From whooping cough, New York 7, Philadelphia 1, Pittsburg 1. From smallpox, Philadelphia 5, Baltimore 1. From cerebrospinal meningitis, New York 63, Baltimore 1, Pittsburg 3, Boston 2, Cambridge, Brockton, Haverhill and Chelsea 1 each. From typhoid fever, New York 6, Chicago 8, Philadelphia 19, Baltimore 6, Pittsburg 14, Lowell 1, New Bedford 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending May 21, the death-rate was 15.5. Deaths reported 4,532; acute diseases of the respiratory organs (London) 105, whooping cough 182, diphtheria 45, measles 182, smallpox 4, scarlet fever 30.

The death-rate ranged from 6.9 in Northampton to 21.7 in Norwich, also in Birmingham; London 15.1, West Ham 13.2, Brighton 17.8, Southampton 14.4, Plymouth 10.1, Bristol 13.1, Leicester 11.9, Nottingham 14.5, Birkenhead 16.3, Liverpool 18.4, Bolton 17.5, Manchester 19.6, Salford 16.2, Bradford 17.2, Leeds 20.0, Hull 15.2, Sheffield 15.4, Cardiff 14.2, Rhondda 12.4, Wigan 12.5, Merthyr Tydfil 14.3, Smethwick 11.2, Warrington 17.8.

METEOROLOGICAL RECORD.

For the week ending June 4, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 29	30.08	64	75	52	54	43	48	N W	W	6	9	C.	C.	0
M. . 30	29.96	67	80	54	67	54	60	S W	S W	20	12	F.	C.	.24
T. . 31	29.99	67	72	62	80	100	90	N	W	8	5	O.	R.	.03
W. . 1	30.26	52	55	49	76	100	88	N E	N E	15	20	C.	R.	.25
T. . 2	30.20	50	53	48	96	96	96	N	N E	15	7	R.	O.	.10
F. . 3	30.04	54	59	48	100	88	94	E	E	4	2	O.	O.	.16
S. . 4	30.19	62	67	56	87	86	86	N E	S E	4	6	C.	O.	0
☞	30.10		66	53			80							.78

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

F. SAVARY PEARCE, M.D., of Philadelphia, died in Steubenville, Ohio, May 27, at the age of thirty-seven. He was graduated from the University of Pennsylvania in 1891, and had in late years become identified with neurology in Philadelphia. At the time of his death he was professor in this subject at the Medico-Chirurgical College. He was an ardent student of his chosen subject and had published many papers. This year he was to have been chairman of the section of nervous and mental diseases of the American Medical Association. He was a member of many medical societies and was in general regarded as one of the promising men in the department of neurology.

GEORGE WASHINGTON BROOKS, M.D., of New York died from cerebral apoplexy on June 4, at the age of eighty-seven years. He was graduated from the medical department of the University of the City of New York in 1850, and at one time had among his patients some of the most noted residents of New York. He retired from practice some years ago, and had several attacks of apoplexy before the one which proved fatal. Dr. Brooks' brothers, James and Erastus Brooks, were for many years the editors of the old New York *Express*, and prominent in literary and political circles. He is survived by a widow and one son, Dr. George Frederick Brooks of New York.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 11, 1904.

GUTHRIE, J. A., past assistant surgeon. Detached from the "Franklin" and granted leave for three months.

HART, G. G., acting assistant surgeon. Detached from duty with recruiting party No. 5, and ordered home and to wait orders, from June 4.

SELLERS, F. E., acting assistant surgeon. Ordered to the "Franklin."

FAUNTLEROY, A. M., assistant surgeon. Ordered to the "Lancaster," June 22.

ANGWIN, W. A., assistant surgeon. Appointed assistant surgeon with rank of lieutenant, junior grade, from June 2, 1904.

ROSS, J. W., medical director. Detached from the Naval Museum of Hygiene and Medical School, Wash., D.C., and ordered to duty with the Isthmian Canal Commission.

MUNSON, F. M., assistant surgeon. Detached from the naval station, Polloc, P. I., and ordered to the naval station, Olongopo, P. I.

KITE, I. W., surgeon. Orders detaching from the "Maine" revoked; ordered to continue duty on the "Maine."

SMITH, C. G., assistant surgeon. Ordered to the naval hospital, Mare Island, Cal., June 28.

ABEKIN, F. G., assistant surgeon. Detached from the naval station, San Francisco, Cal., and ordered to the "Adams."

NELSON, H. T., jr., acting assistant surgeon. Detached from the naval hospital, Sitka, Alaska, and ordered home and to wait orders.

MILLER, J. T., acting assistant surgeon. Detached from the naval hospital, Mare Island, Cal., and ordered to the naval hospital, Sitka, Alaska.

Addresses.

SOME FERMENTATIONS IN MEDICAL EDUCATION.*

BY HAROLD C. ERNST, A.M., M.D.,

Professor of Bacteriology in the Harvard Medical School.

In looking up the history of the office I am honored in attempting to fill to-day, certain points of interest have been brought to my attention.

In 1804, Dr. Isaac Rand delivered the first annual address — on Phthisis Pulmonalis, and the use of the warm bath — and with six exceptions (1814, 1815, 1819, 1825, 1831, 1832) the practice has been continued annually, until to-day it enters upon the second century of its existence.

The subjects considered in this long line of addresses cover, as might be supposed, a wide range, and it is interesting to note a gradual change that has occurred. About 20% (19 out of 95) have been upon what may be called "specific" lines of thought — such as the first one (mentioned above) or those of Abraham Haskell (1812) on Cynanche Trachealis, Walter Channing (1833) on Irritable Uterus, or Horatio Adams (1858), Investigations upon the Subject of Vaccination. Such specific subjects were, however, very largely treated more than fifty years ago (17 out of 19), and in the last half century the speakers upon this occasion have usually considered matters of general interest to the profession in a long series of entertaining essays.

Evidently, the matter of education has been much in the minds of medical men, for nearly half of the addresses during this latter period have had this for the major or a prominent minor theme. Indeed, it was first treated specifically in 1822 by Dr. John G. Coffin, on Medical Education and on the Medical Profession, but the somewhat marked increase of attention given to it of late years shows how actively the specific fermentations of advanced thought have been producing changes and by-products with which we shall have to deal. The men who have brought these matters before the society command attention by the honorable position they have held in the ranks of the profession, and the list includes many of the names most familiar to us of to-day as being among the leaders of medical thought in the past.

It has been, therefore, with many misgivings that I have endeavored to prepare myself to say something that has not been said and better said before. Without thought that this is possible, it may be well to consider some of the changes — fermentations — going on in medicine, now, as in all previous stages of its history; to see what elements of good have come, and perhaps to forecast some of what may be hoped for when the end results are reached.

One of the most impressive incidents in a recent trip abroad occurred in Paris upon the occasion of a visit to the Institute Pasteur. The spirit of the place is present everywhere — the spirit of earnest search for some addition to human knowledge, for some alleviation of human suffering inculcated in all his pupils by the master mind of the founder. This is not the place for a eulogy of Pasteur, but no man has a nobler monument than this busy hive of industry surrounding his quiet resting-place. Here are workshops where efforts are made to solve some of the problems of disease, by men whose lives are given to the work, and whose hopes do not go beyond that of some success to crown their efforts. These workshops are perfect of their kind, and the tools they hold are handled by a force of men unsurpassed in training, ability and enthusiasm. Besides these investigators, endeavoring to open out new lines of knowledge that shall benefit humanity, others are constantly employed in making use of those already known and in applying the results of past labors to present suffering. One may see there, any day and all day, men of world-wide reputation, each imbued with that spirit of which there is an all too small allowance in existence — the true spirit of scientific research, the desire for the enlightenment of the human race. There can be no other motive that compels this constant devotion to their life work. The pecuniary reward is such that a statement of it is always met with wonder and incredulity. And yet these men are content with what their life offers them — work on day after day and will continue until the time that work is no longer possible. To one knowing these facts and how slight the reward may be, the sight of this busy place is a stimulation not easily forgotten or set aside.

I do not mean that here only is such self-sacrificing devotion to be found; far from it. The impressiveness of the place is due to the thought of how much good to humanity has come and may be expected to come from the workers that have been or are now there. Similar instances of individual devotion to duty in this direction may be found the world over, but, as I believe, no instance of so much accomplished and so much attempted in the same place. The spirit of commercialism is absolutely absent; the fraternity of research for advancing human welfare is the goal to which their efforts tend; money rewards that sometimes come — as the Nobel prize to one of them — are devoted to the common aim, as by Pasteur himself, and no thought of personal aggrandizement comes to any who gain admittance to this brotherhood.

Such a condition of things leads a thoughtful mind to the consideration of how it could have come about — what underlying force could have produced such a band of devotees to a cult that has no attraction for the practical man, and indeed is beyond his comprehension. Still further thought comes, How can such a spirit be bred and cherished among us here; what is our duty and responsibility in the matter? The

* The Annual Address before the Massachusetts Medical Society, June 8, 1904.

impelling force in this instance is undoubtedly that of Pasteur himself — a man distinguished always for his simplicity of life, devotion to duty, and elevation of ideals. As may be read in the story of his life, his career was precisely that of the fermentations he studied; marked by ceaseless activity, the constant production of fresh adjustment of ideas, much uncertainty and doubt, some useless by-products, and an end result of good of lasting and widespread influence over all with whom it came in contact. Courteous in controversy, patient and persistent under failure, generous in praise to others, modest when success was reached, the influence of such a man could not help but be profound upon those it reached at all. It was profound, and to-day it governs the work carried on in his institute and by his pupils.

The racial influence is of course behind it all. The French spirit of scientific investigation in general, in its highest form, is of the same character; this is but an instance made conspicuous by a man of great ability.

That spirit, then, is the basis of the work here spoken of — simplicity, altruism, devotion to the truth. What can we do to develop and cherish it with us?

There is rising, not far from the place we now occupy, a group of buildings that, when completed, will form a noble addition to the beauties of the city. They are the result of many forces, notably of the far-sightedness and enthusiasm of two men, this aided and supported by many others, whose generous contributions have made the result possible. The conception of such a plant was so daring that the first attempts to convince others were discouraged and even now are not infrequently heard with skepticism. The time for such a move had come, however, and the men were at hand to carry it out. Now that their labors are approaching completion it is full time to consider what shall be done in those buildings when completed, and how the great trust shall be administered.

In his last address to the students of the Harvard Medical School, Oliver Wendell Holmes said this: " Leyden, Edinburgh, Paris, were each in turn the Mecca of medical students, just as to-day Vienna and Berlin are the centers where our young men crowd for instruction. These, also, must sooner or later yield their precedence and pass the torch they hold to other hands. Where shall it next flame at the head of the long procession? Shall it find its old place on the shores of the Gulf of Salerno, or shall it mingle its rays with the northern aurora up among the fjords of Norway — or shall it be borne across the Atlantic and reach the banks of the Charles, where Agassiz and Wyman have taught, where Hagan still teaches, glowing like his own *lampyris splendidula* with enthusiasm, where the first of American botanists and the ablest of American surgeons are still counted in the roll of honor of our great university? " [1]

[1] O. W. Holmes, Some of my Early Teachers. Medical Essays. Ed. 1888. p. 438. Houghton, Mifflin & Co.

So far as buildings and facilities are concerned the query and suggestion made twenty odd years ago may be answered in the affirmative, the doubt that remains is the capacity of the successors of the great names mentioned to fully utilize and develop the trust placed in their hands.

The changes that have occurred in the Harvard Medical School within the last generation have been very great; I pointed this out as follows in another place: In the early seventies the Faculty of the school took the step of grading the course of study and requiring students to pass from one subject to another in logical sequence and after examination; a step that was taken with many forebodings, and that resulted in a tremendous pecuniary loss to the school (by cutting off the number of students), but that was so necessary that the struggle to carry it through cannot be realized to-day. In the early eighties the school moved into its present building, and it was then thought that many years would pass before its needs could even occupy the space then had. On the contrary — even with the help of the Sears addition — the most effective work for the students has been hampered for some time past, and some of the departments are and have been crowded to the extent of often being obliged to refuse special students. In 1896 the Faculty decided to raise the standard of admission to the school by the requirement of a degree in arts, letters or science — with some special exceptions — and this regulation went into effect in 1901. It had been looked forward to with much trepidation by many of the teaching force, and with lively fears that the school would lose so many scholars that it would be pecuniarily crippled (as has since occurred). It cannot be doubted, however, that if this unfortunate result should temporarily continue, the friends of the school will support it through any such trying period, as generously as has always been the case. That this is practically certain, is shown by the encouragement to the efforts making to bring about the greatest advance that the school has ever thought of — a scheme for securing its future for generations to come, together with the establishment of what will be, if it can be carried through, the most perfect university of medical science that the world has yet seen. A place where students of medicine in all its branches may come to find an equipment perfectly adapted to their needs, and teachers prepared to foster and encourage research in all its directions for the demonstration of new truths, as well as to give instruction in all branches of present medical knowledge.[2] How this may best be done in any case is matter for much careful thought, and the solution of the problem is to be sought in two different directions.

If a student is to take the best advantage of what is offered to him, he must have an opportunity for the proper care of his body, and the

[2] Adapted from Progress of Medicine, 1850–1900. H. C. Ernst, May 8, 1900.

better the facilities for study that can be given the more likely is the best that is in him to be developed.

Now the right of community life, claimed by all companies of scholars, has been denied to students of medicine in recent generations and in this country. It is but recently that we have begun to look upon the medical school as anything but a trade enterprise — on the part of the teachers as a means for filling their pockets; on the part of the students as a place where they may be taught how to earn a living. The conception of a medical school as in any sense a part of a university, or a place where university study should be carried on and encouraged, is a product of those recent fermentations of which I have already spoken, and has but recently begun to develop in such form as makes it possible to realize it. Directly connected with this thought, and growing from it, is the need for offering such opportunities for a scholar's life as will make the hall-bedroom in a cheap lodging-house a thing of the past, and add to the dignity of student life in medicine what it now lacks — the charm of collective living with a common purpose. The first need, therefore, for the student life of the future university medical department is dormitories, in which the students, attracted by the courses offered or the reputation of the teachers to be heard, may learn to know each other and have easy opportunity for fostering the high ideals and learning early the noble purposes of their life's work.

Nothing can possibly take the place of this community of living in effective development of these ends, and the mantle of the alma mater should be spread over all her sons in embryo — even if not in esse. The refusal of the right to vote for overseers except to graduates of the academic departments is an instance in point.

Even if a student be comfortably housed, he must be fed as well, and as great an obligation rests upon the governing body in this as in the preceding direction. There is no more impressive feeling that a visitor experiences in Oxford or Cambridge than during a visit to the dining-halls of the colleges, each with its customs, its traditions, its portraits and its furniture, bearing a message of loving service to all who care to hear. Why, then, should the students of any university department be left to the mercies of the common eating-house, with never a reminder that life has a more cheering face than faded walls and spattered linen at each renewal of its strength?

How much this question of feeding means, apart from its esthetic side, is indicated in these words of the head of Harvard University — speaking recently at Springfield: "There was another question presented to the corporation that affects another very useful thing in Harvard College, that affects the dining-hall — the dining-hall association. I suppose you realize the fact that it would have been impossible to build up the present university at Cambridge if the corporation had not paid careful attention thirty years ago to the mode of feeding the students at Cambridge in a wholesome and cheap way. I believe that to be the absolute and literal fact."[3]

Here, then, is the practical side of this need emphasized and clearly stated as the result of thirty years' experience. The words mean the simple fact that good fuel must be provided to secure the best results from man's vital engines as for any other mechanism. But in addition to this there should be the influence exerted by comfortable surroundings, made as beautiful and dignified as may be by architectural effect and mural decoration.[4]

A university medical school is as compact a unit as a college of Oxford or Cambridge; its students may be welded into as close a body, very largely by such an influence as this. If thus brought together in study and in play, the influence of the strong will be more strongly felt and the weaknesses that might grow will at least be much less active in that growth.

Further, distinct provision for the mental nourishment of the medical student of to-day should be made. Time has been, when a scalpel or two, a bone and book or two, were all sufficient for his needs. This is no longer true, and the best of textbooks, all of them, the best of journals, all of them, should be in easy reach at convenient hours and in a comfortable home. The Harvard Union, the latest monument of a great citizen's generous love and interest in the young, an enduring influence for good in the community in which it stands, might well be the model which, with proper adaptation to the special needs, would serve the purpose well. Provision for these needs is a duty that cannot be ignored, even if present conditions prevent its immediate fulfillment.

Further than this, too, there should be some care for the student when sick, and help of this sort is to be much more easily given if the student body be closely brought together, than if, as is too often now the case, it be widely scattered and neglected. Recent experience has demonstrated the need of such care as is here meant — that there should be some man or body of men, whose aid might be sought in any difficulty concerning health, and by whom applications would be received with sympathy and attended to with promptness. After such an agency has been once established, its success would depend upon the degree of efficiency with which its duties might be fulfilled. It cannot be doubted that if well done it would prove an ever increasing source of aid and comfort to students standing in need of its services.

This then is the amount and kind of attention that should be paid to the care of the students of the medical department of a university. They should be made to feel that they are a part of a company of scholars — not individuals merely seeking for a means of livelihood. In the particular case used for an example, necessity has compelled the teaching force in medicine to be

[3] Pres. Charles W. Eliot. Speech to Connecticut Valley Harvard Club, March 16, 1904. The Harvard Bulletin, March 30, 1904.

[4] See also Report of Committee of the Board of Overseers of Harvard College to visit the Medical School, 1904, emphasizing the importance of this matter.

widely separated from the rest of the university. This, from many points of view, is most unfortunate, especially because it requires the establishment of complete institutions of the kind spoken of — dormitories, dining-hall, reading and assembly-rooms — separate and distinct from those already in existence for the service of the larger body of students. The complete isolation of this part of the university body makes it all the more imperative that its installation should be complete.

A far more complex problem — even for paper consideration — than that just discussed, in the development of university education in medicine, is as to what shall be taught and how? Minute details it is not intended to enter upon here, but there are general considerations that are of vital importance.

As wise and perfect a course as can be devised should be placed in operation leading to the best training for the practice of medicine. Inasmuch as present usage in this country requires that the practitioner of medicine should hold a doctor's degree it would be impossible to confer a lower with satisfaction to the main body of students, even though it be true that such doctor's degree does not confer the right to practice. It may be hoped that eventually the value of the discarded Bachelor of Medicine may revive, and that a more perfect scheme of university education in medical science may be worked out than is now possible. It should be practicable to lay out a course qualifying the student for the practice of medicine, that would not require, as is now the case in many institutions, the preliminary education represented by the bachelor's degree in arts. As conditions are, this is impossible, and the best schools of to-day are graduate schools in the sense of requiring a preliminary degree — with some exceptions — in arts, letters, philosophy, or science, of those who desire to enter upon the study of medicine.

The degree of Doctor of Medicine should, however, be looked upon, when conferred by this better class of institution — certainly when they are parts or departments of universities — as indicating that the holder has been trained upon broader lines than those qualifying simply for the practice of medicine. One method by which this end has been sought, is by the offering of electives — at present only in the later years of the course — by a selection from which a student may prepare himself for a career in the more purely biological branches. This is not a perfect solution of the problem, for just as long as all practitioners of medicine in this country feel the need for holding the degree of Doctor of Medicine, just so long will it be impossible to give that degree the same standing as a representative of general culture as is now held by the degrees of Doctor of Philosophy or Doctor of Science, which it should do from the university point of view.

The advance of knowledge in branches of biological science connected with a medical school, and the development of laboratories and research work connected with them, brings out a new point of view. It makes it possible to look at them as channels through which a way may be constructed leading to other university degrees. The paths leading to these degrees to run side by side with that to the doctorate of medicine on the one hand, and with those laid out by other departments of the university on the other.

So that the future complete medical department of a university must look forward to a variety of functions and must provide for a variety of degrees, suited to the various sorts of students that will, or should be, attracted by its teaching. It *must* be something more than a simple medical school, offering instruction only to those intending to practice medicine. It must do this, of course, and in the best possible way, making arrangements for instruction in the laboratory branches sufficient for the needs of the well-educated practitioner and supplementing this laboratory instruction with such a profusion of clinical work that the student pursuing the course will be well fitted, upon its completion, for the responsibilities that may soon be placed upon him.

Inasmuch as the best university schools now require the lower degree for admission, it has been argued that their function should cease here, so far as degree giving is concerned, since in one sense they are, as has been said, graduate schools already, and that they should confine their energies solely to courses leading to the degree of Doctor of Medicine and to research. It is, however, but a narrow conception of the importance of many of the fundamental branches of medical science, or of those closely allied to them, that would limit their functions in this way. It is not so very long ago that anatomy, physiology and pathology were all taught by the same person; as well return to this practice, as to claim that the departments now controlling these subjects do not expand further than what is needed by the medical practitioner.

Since their subdivision, other subjects have assumed essential importance; histology, embryology, physiological chemistry, bacteriology, comparative pathology, are some of those that have thus grown to importance and to special names. Others are evidently rapidly coming forward, and students may be found in the laboratories devoted to any one of these subjects, who have no intention of becoming practitioners of medicine, and to whom the clinical work prescribed is unnecessary and possibly distasteful. At the same time their desire may be to study these subjects in direct connection with the human race — it is surely of importance that they should do so; and where could such instruction be as well obtained, or where could it be more easily provided, than if built up side by side with the instruction leading directly to medical practice?

The conception is therefore of something to be planted beside and to grow up with the medical

school as commonly understood. And since the complexities of the education of the medical practitioner are so great, the new sort of education should be administered by a separate executive body with a separate head, to which might be given the name of the Graduate School in Medicine; not *of* medicine, for the plan here suggested involves laying out courses leading to other degrees than the Doctorate, open to non-graduates as well as to graduates in medicine. This new administrative board should, of course, be allied with other existing boards in the Faculty of medicine, and thus the university department of medicine would assume the full functions and dignity that belong to it. Included in such a university department then, if the idea were carried out to its full development, there should be courses leading to degrees other than and in addition to that of Doctor of Medicine, and of varying value.

Provision should undoubtedly be made in this country, as is so generally done elsewhere, for persons desiring to enter upon public health work. There are many positions to be filled in the direction thus indicated — positions that do not require the usual training of a practitioner of medicine, but do need a portion of that training, that could well be furnished by a selection from the courses leading to the medical degree, with some additions or amplifications as the need might be demonstrated.

The university department of medicine must be a place of liberal education, as well as a training school for special lines of work. The fact should be recognized that a liberal training in biological science is as possible in connection with man as with the lower animals, and therefore courses should be provided in this department that would be sufficient for the degrees of Master of Arts and of Science, Doctor of Philosophy and of Science.

If the broad conception of the medical department of a university I am endeavoring to emphasize be made clear, it is difficult to believe that objections raised to it will not disappear. The courses suggested for these degrees should be open to all who would be qualified to enter upon them in any other department of the university, not limited to those possessing a degree in medicine. The fact that they should be made up largely of laboratory courses, and must also probably be supplemented by and allied with courses in other departments of the university, would prevent this limitation. They must also, at present, be limited to the laboratory courses, for the reason that clinical teaching is not now available for such purposes; that it may become so in the not distant future is a hope of its best friends. Some of the lines of development by which this hope may perhaps be realized will be indicated later.

The discussion of such a project as is here outlined brings out a confusion of thought that it has been difficult to clear away — the distinction between "graduate instruction" from the university point of view, and "graduate instruction" as usually understood in medical education and illustrated by the many post-graduate schools and polyclinics that have come into existence of recent years.

The first takes as a basis for the word "graduate" the possession of the lowest — the bachelor's degree in Arts, Letters or Science; it means the student who has taken the first step in the company of scholars. It undertakes to provide for him the means for reaching any higher grade that the special facilities of medical science may offer, and to enable him to reach any academic degree that his inclinations and abilities may lead him to desire.

The second takes the meaning of the word "graduate" to be limited to a graduate in medicine, and undertakes to provide for such a graduate longer or shorter courses suited to his needs, in the clinics or in the laboratories as the case may be; by the very fact of such limitation the opportunities offered are limited in their usefulness.

From the university point of view the first is the most important meaning; from the medical, the second. But unquestionably the university standpoint is the broader; it therefore should be granted its prior claim upon the use of the term "graduate course," and courses in the suggested "Graduate School in Medicine" should include both those leading to degrees other than that in medicine, and those offered for the special benefit of medical practitioners. These latter should be made as full and as varied as the means at hand will permit; they should be extended and repeated so that the medical practitioner should be able at any time to satisfy his need for instruction in any direction. And side by side with them should be offered the more complete, the longer courses, that may from time to time be found worthy to lead to academic distinction other than that represented by a medical degree.

This medical degree, the doctorate, may itself be enhanced in dignity and value if the plain facts of the case should become recognized and the custom of the country be overcome. The revival of the bachelor's degree in medicine would secure this end. This bachelor's degree is the only one that is really necessary to insure a training fitting the student for the ordinary practice of medicine; the licensing boards and their examinations must act favorably to enable him actually to exercise the healing art. The doctor's degree in medicine should represent a higher training than this; but, as has been already pointed out, the century's practice to the contrary seems to make it impossible to reach this end at present.

This condition of public opinion, and indeed of the medical profession itself, is the main reason for an effort being made to satisfy the other demand that makes itself felt — the demand for training in the biological sciences best developed in a medical school but that shall free the student pursuing such training from the, to him, unnecessary and burdensome exercise in clinical medicine.

A further argument in support of a separate

executive board in charge of both kinds of graduate instruction spoken of, is that it would serve to enhance the dignity of what I have called the less important from the university point of view. All the better class of medical schools are busily engaged in developing this form of instruction, and in devising means for attracting this class of students, by offering advantages to the medical practitioner. This medical practitioner is a graduate, and there can be no doubt that it would prove a source of attraction to him that an institution offers him the opportunity to deal with a body concerned with his needs, separate and distinct from the undergraduate medical students. That this is so has been shown by the success of such independent institutions as have devoted themselves to this line of teaching, but whose work would undoubtedly have been strengthened if it had been affiliated with that of medical schools already established. The influence for good and the stimulation exerted would have been reciprocal.

A most important factor in advancing medical teaching of all kinds will be an expansion of the development of specializing in teaching that has already been referred to. It is the universal experience that the best results are to be obtained if an instructor devotes his entire time to his teaching and does not engage in practice. This has come to be recognized as a necessity in many branches — those in particular, that are concerned with laboratory work and laboratory research. The heads of such departments devote their entire time to the development of that department; it would be impossible for its work to be carried on satisfactorily under any other arrangement. The entire staff of all such departments should be under the same obligation, and sufficient living salaries should be offered to satisfy this end. Precisely the same principle should be extended to the clinical branches of instruction, and clinical teachers in the future should be required to give their entire time to the departments in which they may be engaged. They should use their hospital wards and clinics as the laboratory man uses his laboratory, as places of study, teaching, and research, in which the constant presence of the directing head shall serve as an inspiration to the students attracted thither. Most occupants of university chairs do this very thing; there is a constantly growing feeling against the holder of a professorship, and of lesser places as well, doing anything for pecuniary return that may curtail his time for teaching and research. The same principle should apply to clinical teachers in a medical department of a university.

Two objections have been urged against this suggestion. One, that a non-practitioner is not well fitted to teach how to practice; the other, that competent men cannot be found to accept such positions at any salary that the existing universities could afford to pay. The first objection is one due to long established custom and belief, and would disappear as soon as the experiment should be tried. So far as the practice of the healing art is concerned, its methods are now learned and taught in the hospitals, and have been so, ever since the old association of each student with some practitioner was abandoned. No student of the present day learns anything about how his instructor handles patients in private practice, except from what he sees in the wards, unless, as exceptionally occurs, he makes some private visits as a special favor. As a matter of fact, the treatment of patients, the practice of the art of healing, is more perfect to-day in any good hospital than in a home, and the instructor competent to fill the clinical positions here suggested would be a man also entirely competent to teach the necessary details of practice out of the wards, so far as they ever can be taught. The second objection is one that is even less serious than the first. If such positions were created, the dignity of a university chair, with control of hospital wards and of the teaching in the medical subjects covered by the chair, together with leisure and opportunity for study — all this would attract a number of men from whom a selection could be made. There is now no difficulty in finding candidates for the laboratory positions; the difficulty lies not in getting a man, but in making a selection of the best from among those available. The genius is no more common to-day than at any other time, but competent persons for such positions can be found, and that easily, at such salaries as are afforded for other university chairs. If this should prove not to be so, it would prove erroneous the belief that academic freedom, certainty, and dignity offer any advantages as against a possible overflowing purse.

Of course, for such a purpose, the university must have a hospital of its own, or at the least be so affiliated with a hospital managed in sympathy with its aims, that it shall have control of the appointments to the staff.

There are many kinds of hospitals and various functions to be filled by them. As this address is dealing with so many of the fermentations now inducing change in methods and means, it may not be out of place to remind its hearers what some of these functions are. The first and common duty of any hospital, the one that laymen and medical men understand everywhere, is to care for the sick poor. To help this function is at the bottom of the foundation of them all; the desire to help the sick poor is the reason for most of the donations and bequests given to them. This function has existed from the beginning, and that it was understood to be the primary duty of such an institution is indicated by the name itself, that the inmates were "hospes" — guests — and no fixed remuneration was exacted of those who received the benefits. This function will, of course, always remain a prominent one; but a second has been added that is almost as generally recognized to-day; this is the obligation resting upon a hospital to teach, and thus to spread more widely its beneficent influences by giving to others than the attending staff the benefits of the study and experience to be gained

within its walls. It is not many generations ago that no hospital was used for this purpose, and medicine was taught wholly by lectures. It was because the beginning in this use of hospital wards was made at Leyden that the great fame it attained as a center of medical learning was so early reached. And unquestionably it is largely because this function has come to be generally recognized that medical art and teaching have reached the position of dignity they now hold. There is, however, a broader application of this function of teaching that has not yet become widely known, and that must be applied specifically and broadly, as it is in occasional instances, in order that the best advantage of modern methods may be taken in developing and advancing our knowledge of disease. This consists in a union of the forces of the laboratory and of the hospital staff in a more definite and complete way than has yet been accomplished, and would require a unity of purpose and a sinking of individual position and privilege that might be difficult to secure.

There are problems in medicine — and the number increases — that cannot be solved by one man, or even by one department; they must be treated by a collection of the best men of the community having knowledge of the subject, brought together for purposes of consultation and sympathetic investigation. The hospital wards should furnish the material, the laboratories the means for study in this line, the clinicians using their knowledge for the binding together of the observations made. A way in which such collective investigations could be carried on is this, and it may be put in practice by existing hospitals or by new ones: Let the board in control turn its attention to some single problem pressing for solution, the question of typhoid fever, for example; why is it that, after so many advances in knowledge, the apparent mortality from typhoid fever is no less to-day than it was fifty years ago? (R. H. Fitz, Typhoid Fever. Boston M. & S. Journ., 1899.)

Certain wards might be set aside for the collection of cases of typhoid fever, or, in the case of a small hospital, its entire capacity might be devoted to the care of cases of this disease. Let it be understood that for a term of years nothing else would be received. Co-operation with other hospitals would secure sufficient material. The control of the wards should be placed not with a permanent staff, but with a set of specialists selected for their fitness to handle various parts of the problem. All needed laboratory facilities should be added, and then for a period of three, five, or more years, the whole of this complete force should be engaged in the study of the problem set before it. The advantages of such a method of collective study cannot be overestimated. From the point of view of the hospital — especially if small — the reputation and efficiency to be gained by such concentration of effort could not be reached in any other way; the patients would benefit by the attendance of men and the use of methods specialized and perfected to the highest degree; humanity in general would be likely to benefit by improvement in methods, the result of such combined effort and study concentrated upon one problem.

The partial benefits of this are seen in certain diseases in the results of treatment in the South Department of the Boston City Hospital, where known methods are applied by skilled experts to a limited series of diseases. The plan here suggested, however, involves the effort to penetrate unknown paths, and this upon a large scale with a clearly marked map of campaign.

Other problems could be taken up as their importance became apparent, and the attending staff could be changed to suit the requirements. If I have succeeded in making this suggestion at at all clear, I hope it may appeal to my hearers, as it does to me, as giving promise of most fruitful results if carried out.

The final fermentative suggestion I have to make is this: A most important development for freedom of learning will be an extension of agreement among university departments in medicine by which the migration of students may be fostered and encouraged. It will be impossible for any one institution to gather within its walls all the leaders in all branches of medical knowledge. But the best interests of the student — and of medicine — require that the learner should have the opportunity to profit by as much of the best as can be provided for him. This may be accomplished by creating such parallelism in medical teaching in a number of leading institutions that similar years of the course shall be practically equivalent; so that, if a student has completed a year's study in one institution, he shall be competent to continue his work in any one of a number of others. He should be allowed to do this without examination and upon simple certificate. If this could be carried out, it might happen that such a student would attend several different institutions in his course for a medical degree. He would be certain to go to more than one, unless the excellence of instruction in all departments of each should be more nearly equal than it is easy to suppose possible. The stimulation to teachers would not be the least of the benefits that would arise from the adoption of this plan.

I have thus endeavored to present some of the fermentative changes through which the future growth of medicine is to be influenced. I know that the accomplishment of some of the suggestions made is likely to be long delayed. Some of them, on the other hand, are nearing completion, and the prospects for progress, for liberal training, and for thoroughness are nowhere brighter than in medicine to-day.

According to *American Medicine*, M. Guien, agent for culture of the Colonial Society of the Upper Congo, has drawn attention to a native remedy for "sleeping sickness." It is an infusion of the wood called "iboga," which is common in the Gaboon. It is claimed that this infusion acts as a stimulant which counteracts the sleeping sickness.

PREVENTIVE MEDICINE: ITS ACHIEVEMENTS, SCOPE AND POSSIBILITIES.[1]

BY HERMANN M. BIGGS, M.D.,

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THE terms sanitary science, public or state medicine, and preventive medicine have frequently been used as almost synonymous. The latter term, "preventive medicine," however, has sometimes been restricted in its application to the prevention of the infectious diseases. In the broad sense, preventive medicine comprises both general prophylaxis and individual prophylaxis, and applies to all forms of disease, not simply to the infectious diseases. Preventive medicine is an applied science, which deals with the preservation of the health, both of the individual and of the community.

No subject more vitally concerns the welfare of a community than that pertaining to its healthfulness. How the inhabitants live, and how and at what age they die, what is the extent and character of the morbidity occurring among them and what are its causes, are questions of momentous importance. They are essential features in the problem, whose solution will teach men how they may live longer, healthier, and therefore happier lives.

In rural districts the average healthfulness of the inhabitants depends largely on natural conditions, such as elevation, climate, soil, and, to a much less extent, on the artificial conditions produced by the handiwork of man. In densely populated cities, on the contrary, the natural conditions become relatively unimportant features in determining the degree of healthfulness, so much do they become subordinated in many cases to the artificial conditions which have resulted from the lives, labor and occupations of the inhabitants. It may be said with certain limitations that the inhabitants of any city in the temperate zone now have it largely within their power to determine what degree of healthfulness their city shall have. A high morbidity and a high mortality in any urban population depend largely on some remediable features of an unsanitary character, such as the sewerage of the city, the occupations, habitations, food and water supplies, and the habits of the inhabitants — all factors which lie to a great extent within their control. Hence, when any city in modern times has a high annual death-rate, for example, 30–35 per 1,000, as was formerly the case in New York, Liverpool and other cities, instead of a death-rate of 17–18 or 19 per 1,000, as now exists in London, Berlin and New York, it is because conditions are permitted to exist, partly from the neglect, indifference and ignorance of the people, and partly from the lack of proper facilities and necessary efficiency on the part of the authorities.

The achievements of scientific medicine have now placed at the disposal of the sanitary authorities such full knowledge as to the causation of so large a proportion of the diseases producing death, and of the means by which they may be restricted or prevented, that the determination of the average death-rate is in their hands. This statement is not, of course, intended to mean that it is now possible to prevent or stamp out local epidemics of influenza, pneumonia, cerebrospinal meningitis and some other infectious diseases, but it is intended to cover the average general death-rate of a city for a series of years.

The expectation of life at birth in certain manufacturing cities of England has been but little more than one half that of the healthiest districts of England. Until recent years it was twenty-five or twenty-six years in Liverpool and Manchester, thirty-seven years in London and forty-six years in Surrey, a healthy country district. Even at the age of thirty, the expectation of life was seven years more for England as a whole than it was for the inhabitants of Manchester. I have estimated that the expectation of life at birth in New York City in 1866 was only a little more than twenty-five years, while in 1903, calculated on the death-rate for that year, it had almost doubled, and equaled about forty-two years. For the seven-year period ending in 1873, the death-rate under five years in New York City was 123 per 1,000 of the population at these ages. For the year 1903 the death-rate under five years was fifty-six. On the present estimated population at these ages, this reduction equals a saving of more than 28,000 lives annually.

These considerations suggest the vast importance of the healthfulness of the community to the individual at every age, and to the community as a whole, for on this depends not only the relative freedom from illness, but also the probable lifetime of each member.

In the casual consideration of the healthfulness of communities as compared with the conditions existing in earlier times, we are inclined to think without investigation that there has been but little advance in modern times, and that while some diseases have been greatly restricted or entirely stamped out, these have been replaced by others equally as fatal to the human race. A little study, however, shows how erroneous are these views. In the seventeenth and eighteenth centuries the average annual death-rate throughout the civilized world was at least 50 per 1,000 of the population, and probably it was much more than this. From 1628 to 1635 in London, these years being free from pestilence, the average death-rate was 50 per 1,000, and the absolute annual mortality for twenty-four years, from 1620 to 1643, was over 70 per 1,000.

The death-rate during 1902 in London was only 17 and a fraction per 1,000. The mean expectation of life in London for the decennial period, 1771–1780, as calculated by Price's table, was nineteen and six-tenths years, the annual mortality being 51 or 52 per 1,000; while from 1831 to 1835, although an epidemic year

[1] Address on State Medicine at the fifty-fifth annual session of the American Medical Association at Atlantic City, June 7–10, 1904. By courtesy of *The Journal of the American Medical Association.*

is included, the death-rate had decreased to about 32 per 1,000. In 1894 the mean expectation of life at birth for all England had more than doubled that of 1780 in London, so that it was nearly forty-one years, and for London alone it was thirty-seven years. From 1771 to 1780 in London not less than five in each thousand of the population died annually of smallpox; in 1810 this mortality had sunk to 2 per 1,000, and in 1835 to 0.8, and in recent years it has been an absolutely insignificant decimal. Fever as a cause of death declined in almost the same ratio, from 6.21 in the decennial period ending in 1780 to 2.64 in 1810, and 1.14 in 1835. In the sixteenth century fever, plague, cholera and dysentery destroyed annually 31 out of every thousand of the population of London, or nearly twice the total deaths occurring now from all causes. These diseases at the present time, as causes of death, do not equal in London 2 per 1,000 annually of the population.

According to the English life tables up to 1875, 518 out of every thousand children in Liverpool died during the first five years of life; 351 died in London and 205 in the healthy rural districts of England, while in the whole of England 297 out of every thousand died during this period of life. In old New York City (comprising the boroughs of Manhattan and the Bronx), for the seven-year period ending in 1873, 616 out of every thousand children born died during the first five years of life. As computed by the death-rate under five in 1903, 280 would have died during these same five years. This mortality while still far too high, equals a reduction of nearly 60%, and as calculated for the estimated population at these ages, means a saving of about 20,000 lives a year in these boroughs. The death-rate in the period over five years of age has naturally shown a much smaller decrease, although it has fallen from 19 or 20, as it was in 1865 and 1866, at the time of the organization of the Department of Health of New York City as at present constituted, to about 14 for the year 1903, being a reduction of nearly one third. This has been accomplished, notwithstanding the fact that the old city has increased during this time from a population of about 750,000 to more than 2,200,000.

It does not seem necessary or desirable for our present purpose to consider in detail the causes of this decrease or the special diseases in which it has taken place, but the facts suffice to indicate the great achievements of preventive medicine during the past four decades. Expressed in human lives, it means in the boroughs of Manhattan and the Bronx a saving of over 30,000 lives a year, and, computed at the same rate for the whole city, a saving annually of more than 50,000 lives. I would not be taken as intimating that all of this has been accomplished through the agencies which we usually include under the head of preventive medicine, or that it has been the result solely of the action of the sanitary authorities. Such an interpretation would be very far from the truth, for many agencies have been at work in the production of these results. But preventive medicine, as I conceive its purposes and scope, should include all of those agencies which are essential and direct factors in the prevention of disease and the preservation of life. These agencies are not necessarily all under the direct control of the sanitary authorities.

In these introductory remarks, and in much that follows, I have taken many illustrations from conditions which exist in New York, because I have been familiar with the sanitary affairs there for many years, and the illustrations which it furnishes serve our purpose as well as if selected from many different states or communities.

It has long seemed to me that the work of the sanitary authorities in this country was too much restricted, and the general conception of the scope of their functions was narrow and out of harmony with the spirit and development of modern scientific medicine.

Sanitary work has been pretty well limited along certain old and well-defined lines, much to the detriment of the public health. The medical profession has unconsciously contributed no small part to this condition, because of the existence too often of a certain antagonistic attitude toward the action of the sanitary authorities and the feeling that the occupation of a larger field by them would be detrimental to the best interests of the medical profession. The latter has too often resented and opposed any movement to enlarge the field of preventive work, and has often insisted that its operations should be kept within the traditional narrow lines. Until in very recent years the operations of the health officers have been chiefly confined to the measures adopted for the prevention of the more readily communicable diseases, commonly called contagious. These usually included smallpox, diphtheria and scarlet fever, and, at intervals, yellow fever, cholera, epidemic dysentery and typhus fever. More recently typhoid fever and measles, and indirectly the diarrheal diseases of infants, have been generally added to this list. But even in regard to the diseases referred to, the measures adopted have been of an elementary and most unsatisfactory character. It must be admitted, however, that until our knowledge of the causation of many of the infectious diseases was rendered more exact by the discoveries in modern bacteriology, sanitary procedures were of necessity largely empirical, and disinfection was either entirely wanting or the methods employed were quite inefficient.

The scope of the sanitary measures in force with reference to the ordinary infectious diseases has in recent years been greatly broadened. More than ten years ago the Board of Health in New York assumed the position that all facilities and procedures looking to the prevention and cure of the infectious diseases should be afforded by the Department of Health. The establishment of the methods for bacteriologic diagnosis and the facilities for the serum treatment had

their origin there, and have since been widely followed.

General prophylaxis, or that portion of preventive medicine which should come directly under the supervision of the health authorities, has or should have a broader scope than that indicated, and should include the supervision, not only of those diseases which have generally come within sanitary surveillance, but also all the infectious diseases which from their nature are to a greater or less extent preventable, in addition to all other forms of disease which are the result of unsanitary living, occupations, habitations or surroundings, including those diseases arising from manufacturing, mining, or other industries, which, on account of their nature, are peculiarly or especially injurious to health. It should also include with greatly increased powers and breadth of jurisdiction, the surveillance of the water and food supplies and the sewage disposal.

To return for a moment to the consideration of the infectious diseases to be included in this list, there is a large class of different types of the infectious diseases which are well recognized as being more or less preventable which are not included in the registration returns. These are not dealt with at all by the sanitary authorities, or only to a very limited extent. Mention may be made in this connection not only of tuberculosis in all its forms, whooping cough, mumps, chickenpox and cerebrospinal meningitis, which have been included in the registration returns by some authorities, but have not, as a rule, been dealt with by them, but also of puerperal fever, erysipelas, pneumonia, the diarrheal diseases of infants, dysentery, malarial fever, influenza, the contagious diseases of the eye, and certain parasitic diseases of the skin, as well as some of the rarer diseases occurring in both animals and man, such as rabies, tetanus, anthrax and glanders.

The inclusion in the registration returns of such a long list of infectious diseases as has been here indicated requires considerable modifications and expansion of the ordinary sanitary procedures, and such action at first thought is likely to arouse opposition and unfavorable criticism from the medical profession. Such opposition and criticism, however, I believe is without proper justification, and arises from an erroneous conception of the proper scope and functions of the authorities and their relations to the medical profession and the people.

There has long existed a belief in the medical profession, and to a considerable extent it has also been a part of the conception of the sanitary authorities of their functions, that the registration of a case of any kind of infectious disease involved some surveillance of such case by the authorities. The slightest consideration would at once show that with relation to many of the diseases mentioned no such surveillance could be of any real service, and it might be a source of annoyance to the sick person, the family and the attending physician. Much good, however, would result, in my opinion, by such a broadening of the scope of sanitary work, without causing annoyance or being detrimental to any one. I should like, however, to point out that more than a year ago the Board of Health of New York City in the revision of its sanitary code included a number of new sections in relation to the infectious diseases, covering to a large extent the diseases above mentioned. These sections, with the accompanying notes, read as follows:

INFECTIOUS DISEASES.

SECT. 133. It shall be the duty of every physician to report to the Department of Health, in writing, the full name, age and address of every person suffering from any one of the infectious diseases included in the list appended, with the name of the disease, within twenty-four hours of the time when the case is first seen:

A. *Contagious* (very readily communicable). — Measles, rubella (rötheln), scarlet fever, variola (smallpox), varicella (chickenpox), typhus fever, relapsing fever.

B. *Communicable.* — Diphtheria (croup), typhoid fever, Asiatic cholera, tuberculosis (of any organ), plague, tetanus, anthrax, glanders, epidemic cerebrospinal meningitis, leprosy, infectious diseases of the eye (trachoma, suppurative conjunctivitis), puerperal septicemia, erysipelas, whooping cough.

C. *Indirectly Communicable* (through an intermediary host). — Yellow fever, malarial fever.

NOTE. In this provisional classification of the infectious diseases, arranged for practical purposes, the most readily communicable of these diseases, embracing the exanthemata and typhus fever, have been placed in a group by themselves and called contagious. This has been done with a view to emphasizing a distinction, which is not only of scientific significance, but of practical importance, in dealing with the sanitary features of administration. This distinction is furthermore of importance because it avoids the misunderstanding and alarm frequently caused by including in the same class the very readily communicable diseases (such as smallpox) and the much less communicable diseases (such as tuberculosis), which require very different sanitary measures for their control.

SECT. 134. It shall be the duty of the commissioners or managers, or the principal, superintendent or physician, of each and every public institution or dispensary in this city, to report to the Department of Health, in writing, the full name, age and address of any person suffering from any one of the infectious diseases included in the list appended, with the name of the disease, within twenty-four hours of the time when the case is first seen:

A. *Communicable.* — Influenza, lobar pneumonia, broncho-pneumonia, infectious diseases of the gastro-intestinal canal (dysentery, cholera morbus, cholera infantum, summer diarrheas of infants).

B. *Parasitic Diseases of the Skin.* — Scabies, tinea tonsurans, impetigo (contagious), favus.

NOTE. In this list of diseases reporting is required by the Department of Health in order that data may be obtained for general and special investigation of the modes and sources of infection and as to the prevalence and distribution of these diseases. The Department of Health does not propose to exercise a sanitary surveillance in these cases, but desires information with a view to the ultimate removal or improvement in the conditions which foster them. Notification is

required in certain of these diseases because of the liability to their extension among children in the schools.

It will be noted, first, that two main groups of diseases are specified. In the first group, including the more readily communciable diseases, and some others which are not so regarded, registration is compulsory in all cases coming under the observation either of a private attending physician or an institution. These are separated for convenience under three heads: (*a*) The contagious or very readily communicable; (*b*) the communicable, including diphtheria, typhoid fever, Asiatic cholera, tuberculosis and a number of others; and (*c*) the indirectly communicable, including only two diseases — yellow fever and malarial fever — which are transmitted solely through an intermediary host. In these three classes compulsory registration is required, because in all of the diseases in these classes preventive measures, properly executed, are certainly efficient to a very large extent. As to the propriety of the compulsory registration of all of the diseases included under the first heading, "The contagious or very readily communicable diseases," I assume that there can be no reasonable difference of opinion. Measles, rötheln, scarlet fever, varicella, variola, typhus fever and relapsing fever, certainly without question, should be reported to the sanitary authorities. The necessity for reporting rötheln and varicella rests more in the danger of confusion of these diseases with measles and varioloid, respectively, than because of the importance of the diseases themselves. Our experience in New York has shown again and again that outbreaks of smallpox have resulted from the failure of inexperienced physicians to recognize mild cases, these having been mistaken for varicella and treated as such. Every case of varicella occurring in the city must, therefore, be reported, and all cases occurring in adults are immediately seen by a trained diagnostician. I say all cases of varicella in adults, because experience has shown that very frequently varicella in an adult is a mild case of variola.

In the second class, called simply "the communicable diseases," there might be some question as to the propriety of the reports in some instances. There would be none, however, with regard to diphtheria, typhoid fever, Asiatic cholera, plague, tetanus, anthrax, glanders and leprosy. All of these diseases are under some conditions communicable and of the greatest importance, yet they are much less communicable than the first class, the contagious.

There cannot now be, nor can I conceive that there ever will be again, any serious question as to the necessity or propriety for the registration and sanitary surveillance of tuberculosis, although this has been a subject of very bitter dispute and although this disease has come actually under the close supervision of the sanitary authorities in only three or four cities in the United States, and of practically none in Great Britian or on the Continent. Pulmonary tuberculosis was included in the list of communicable and reportable diseases by the New York City Board of Health ten years ago, and the measures adopted for its surveillance have been gradually extended and the lines for its restriction have been drawn closer and closer as each year has passed. Some doubt, however, might properly arise as to the necessity of the inclusion of other forms of tuberculosis than pulmonary tuberculosis in the registration returns, because for the most part these other tubercular diseases are not communicable, or very slightly so. Bone, joint, intestinal and gland tuberculosis are practically never sources of infection in other persons, but cases of tuberculosis of the types mentioned indicate the previous exposure to infection of the individual, and they thus point out a probably infected site or family, concerning which the sanitary authorities should have information. Such cases may also disclose unrecognized instances of pulmonary disease. Furthermore, knowledge of all cases is absolutely essential to a comprehensive recognition of the extent and prevalence of the infectious disease, *tuberculosis*. During the past year measures to ensure the registration of tuberculosis in all its forms have been adopted in New York.

The importance of the registration of epidemic cerebrospinal meningitis arises not so much because of the evidence of its communicability as because of the importance of fuller information as to the conditions under which it arises and becomes disseminated. We have in New York City just been passing through an epidemic of this disease, the first serious one for thirty years. During the month ending May 15 more than 300 deaths occurred in New York City from this cause.

The infectious diseases of the eye — trachoma and suppurative conjunctivitis — should be included because of the importance of the adoption of preventive measures in the public schools. Few persons had any conception of the great prevalence of these diseases of the eye in the public schools of New York until after the Department of Health adopted some comprehensive measures for their surveillance. Such a vast number of cases was found that the Board of Health was forced to establish special dispensaries and provide special hospital facilities for their care. Only within a few weeks a second hospital and dispensary has been opened, and in the original one in connection with Gouverneur Hospital an average of about 500 patients a day were treated during the year 1903, and nearly 5,000 cases were operated on for trachoma.

Puerperal septicemia should be included in the registration returns because modern aseptic midwifery has shown that in most instances this is a strictly preventable disease, and, excepting rare cases of difficult or prolonged labor, its occurrence may be regarded as the result of uncleanliness, negligence or incompetence. The registration and the investigation of these cases by the sanitary authorities should soon result in the exclusion from practice of incompetent midwives,

restrict the work of the criminal abortionist, and foster the practice of aseptic midwifery.

No one, I fancy, would seriously question the propriety of including erysipelas and whooping cough in the registration returns. So far as this country is concerned I assume that typhus fever, Asiatic cholera, plague, leprosy and yellow fever are diseases which will never again call for anything more than occasional or emergency measures for the disposal of isolated cases or small groups of cases. But with reference to one disease in the third class, *i. e.*, malarial fever, some remarks may be in point to show the advantages which are likely to result from the interference of the sanitary authorities. We now all believe that malarial fever is not only an infectious disease and indirectly communicable through an intermediary host, but that it is also distinctly preventable.

The registration of cases of malarial fever should be required, not because close surveillance of individual cases is necessary, but because the sanitary authorities should know where the sites of infection are, where the breeding places of the anopheles mosquitoes are to be found, in order that they may adopt proper means for determining the cause of such areas of infection and the proper measures for their removal. In certain sections of New York City investigation has shown that in some instances almost every person living within certain small areas has suffered from malarial fever during the spring and summer months of a single season. Such outbreaks are without any question the result of local remediable unsanitary conditions, which furnish the breeding places for the mosquitoes. But without special information as to the existence of the cases, only to be obtained through the registration of malarial fever, knowledge of the presence of much unsanitary conditions and their removal may become difficult or impossible. The surveillance in their homes of the individual cases reported is, of course, not contemplated. That conditions similar to those found in New York exist in other communities, I have no doubt.

Section 134 of the Sanitary Code of New York, covering the second group, deals with infectious diseases of a somewhat different type, and in these the Sanitary Code requires the reporting to the department by public institutions of all cases coming under their observation; but it only requests physicians to report them and does not require such reporting.

Class (*A*), in this group, includes some of the more important acute infectious diseases of the upper respiratory tract, namely, influenza, lobar pneumonia and bronchopneumonia, and certain of the more common acute infectious diseases of the gastro-intestinal canal, namely, dysentery, cholera morbus, cholera infantum and the summer diarrheas of infants.

The acute diseases of the respiratory tract referred to should, in my opinion, be registered, because they are infectious, because they are of prime importance as causes of death, and in order that general and special investigation may be instituted for the collection of data bearing on the modes of infection and the sources and causes of their prevalence and their distribution. New York City has during the last winter experienced the greatest prevalence of these diseases which it has had for many years. In the first four months of the year more than 6,000 deaths occurred from influenza, lobar pneumonia, bronchopneumonia and acute bronchitis.

I firmly believe that these diseases can be to a very considerable extent prevented, but the means and the methods are yet to be determined, and it is hoped that registration will assist in the acquisition of knowledge for the attainment of this end.

A large new field has just been opened by recent observations with regard to the specifically infectious character of many of the cases of summer diarrhea and dysentery, both of infants and of adults. The results of the investigation of the sanitary authorities in recent years in many large cities have shown in the most conclusive way that these diseases are to a very large extent preventable, and it seems probable, or at least possible, from recent investigations, that some forms at least are preventable and curable by the use of a specific curative serum.

Investigations in New York and other localities have shown that serious outbreaks of diarrhea and dysentery have occurred in various institutions and in local areas which were probably, if not certainly, preventable, but concerning which the sanitary authorities have had no information. It seems evident, therefore, that these diseases should be made notifiable. A practical difficulty in this connection exists in the lack of definiteness as to what cases should be included and how the differentiation is to be made between the diarrheas due to simple digestive disturbances and those of a more serious nature caused by infection. This, however, is a matter for further investigation.

Notification of the parasitic diseases of the skin should be required, chiefly because of the liability to the extension of these diseases among children in the public schools.

There are certain very large and important questions of prophylaxis connected with the prevalence of typhoid fever and the milk and water supply of our large communities. The occurrence of great outbreaks of typhoid fever, such as the epidemics at Ithaca, N. Y., and Butler, Pa., during the last year, the prevalence in Philadelphia, Pittsburg and some other cities of the United States and the extensive distribution in the rural districts, constitute a disgrace to American preventive medicine and should arouse the sanitary authorities, the medical profession and the people to the provision of efficient measures and the enactment of suitable legislation for its prevention.

The annual cost of typhoid fever in sickness and death throughout the United States would be computed in terms of tens of millions of

dollars. All of this loss we know is certainly preventable. If only a small portion of the annual outlay made by the country for sickness and death from this cause were expended in the education of the people as to the cause and the methods of prevention of this disease and the provision of proper water and sewerage systems, typhoid fever might soon become a rare affection. Unfortunately the city sanitary authorities are often almost powerless in this matter, as their jurisdiction does not extend over the watersheds which supply with water the people under their care, and a supervision by them of the sources of the milk supply is also frequently absolutely impossible.

In New York City detailed investigations of all the cases of typhoid fever occurring within the city limits were instituted several years ago and have been continuously carried on. These show that at least 25% of the cases occurring in the city have *certainly* received their infection outside of New York City, and a considerable percentage more have *probably* received it outside. Five or 6% are the result of contact with other cases, and the remainder are, in all probability, almost wholly the result of infection through milk or oysters. Some more comprehensive measures are urgently demanded to extend the jurisdiction of the authorities in the supervision of the supplies of milk and oysters and other foods.

A serious objection which may be urged against the adoption of the measures here recommended in regard to the registration of many infectious diseases is the increased labor thrown on physicians which their enforcement would involve. The question may properly be asked: Whether the sanitary authorities in the interest of the general public may call on the medical profession for the expenditure of so much time and labor without making any compensation in return. There are 25 diseases included in the New York list. The English authorities pay a fee for the notification of each case of infectious disease, and I believe that this course might properly be pursued in this country; but this has not been the custom here, and the authorities generally are not now provided with the funds necessary for this purpose.

When the Department of Health of New York City established its bacteriologic laboratories in 1892, measures were adopted to make some return to physicians for their interest and labor in connection with the sanitary surveillance of the infectious diseases. A systematic plan was then inaugurated, and has since been consistently followed, to secure their co-operation, by offering free bacteriologic examination in the diagnosis and surveillance of various forms of infectious disease. This was first applied to Asiatic cholera in 1892, during the outbreak in New York Harbor, and has since been extended to all of the diseases in which existing scientific knowledge made it possible, cerebrospinal meningitis being the latest disease added to this list. The establishment of this system of free bacteriologic examinations in the diagnosis and surveillance of the infectious diseases, and the provision of facilities throughout the city for the collection of specimens and the sending of reports to physicians, constituted an entirely new departure in sanitary work and has been of the greatest value. The example of New York has been followed by the sanitary authorities in most of the large cities of this country, by many state authorities, and by authorities generally in Great Britain and to a certain extent on the Continent. These examinations constitute the return which the authorities here have made to physicians for the reporting of cases and for their assistance and co-operation in their care. This return has a very considerable money value, when we remember that for such examinations the usual fee is five dollars, and as physicians cannot, as a rule, make such examinations themselves, they must work without the assistance thus afforded, unless they appeal to the regularly constituted laboratories.

What now are the possibilities of preventive medicine as concerns the larger centers of population? In answering this question we may first take as the basis of our reply the conditions found in some of the large cities with the lowest death-rates, or still better, the conditions found in some healthy rural districts. In considering the crude death-rates, as ordinarily reported, however, one must not ignore the influence of the sex and age distribution of the population on the death-rate. As is well known, the death-rates in the periods of life between five and forty-five years of age are very low, and the death-rate among women is lower than among men. If, then, in a city there is a relative excess of the population in the middle periods of life, or an unusual preponderance of women, we may have a crude death-rate which seems very low, but which when corrected may be relatively high. For example, the death-rate of New York City, as corrected by the English life tables, would probably be at least three points higher than it is. For 1894 the gross rate was 22.76, and the rate corrected by the English tables was 26.46. The corrected death-rate of some of the large, rapidly growing Western cities would probably be five or six points higher than the crude death-rate reported. The death-rate of London at present averages about 17 per 1,000, and when corrected about 18.5 per 1,000, while the Berlin death-rate is somewhat lower than this. The crude death-rate of Surrey, a healthy rural district in England, is 14 and a fraction, and when corrected would probably be 15.

We can hardly use for a basis of comparison the conditions in any of the cities of this country with very low rates, because the rates have not been corrected, and the basis on which they are calculated cannot always be accepted as correct. Taking all the facts together, and judging of the duration of human life as we know it, we may accept a corrected death-rate of 14 or 15 in a large city as a goal toward which preventive medicine should strive and hope to achieve. If

we consider the question from another point of view, as to what is possible in the reduction of the death-rate from distinctly preventable diseases, we would reach a conclusion not unlike the previous one.

In New York City it may be assumed that the present tubercular death-rate of 2.7 may, under proper surveillance, with certainty be reduced to 1.2, and 1.5 points would thus be subtracted from the crude rate. The diphtheria death-rate, already reduced 65% by the use of antitoxic serum, should certainly be reduced to one third of what it is at present; it is now about .6 per 1,000 population. Similar reductions should be possible in the death-rate from typhoid fever, measles and scarlet fever. The diarrheal diseases of infants have already been reduced in the last twelve years to one half of their former prevalence, and should still be reduced more than 50%. Thus more than three points may be subtracted from the crude rate in New York, which in 1903 was 18.18. The rate would then be 15—. The rate for 1903 was the lowest in the history of the city.

The most fatal affections with which we have now to deal in New York are the acute respiratory diseases, including influenza, lobar pneumonia, bronchopneumonia and acute bronchitis. The average death from this group of diseases now exceeds 3 per 1,000 of the population, and in years when there is an epidemic prevalence of these diseases the death-rate may be 4 or more, as seems likely to be the case this year.

The advances in preventive medicine have as yet not only had no influence in reducing the death-rate from this group of diseases, but, on the contrary, there has been a slow and continuous increase. I cannot at this moment point out the method or the means by which a reduction is to be brought about, but still I firmly believe that with fuller knowledge such a reduction will become possible in the great cities where these diseases are so prevalent.

Something can be accomplished through the closer sanitary surveillance of the occupations and conditions under which the lower classes work, especially the noxious trades. Something, too, may be done through a closer supervision of foods to ensure their purity and freedom from adulteration.

A very difficult problem arises in connection with the diseases of the circulatory apparatus and the kidneys. My investigations have shown that in New York City a large increase has taken place, due to these causes, during the last twenty years. The acute respiratory diseases, cancer and diseases of the circulatory apparatus and the kidneys are the only important causes of death which have shown an increase during this period. The increase in cancer amounts to about 15%, and the increase in the acute respiratory diseases amounts to about 15%, while the increase in the diseases of the circulatory apparatus and kidneys combined equals about 40%. In making this statement I have taken fully into consideration the possible influence of greater accuracy in the death returns, *i. e.*, the inclusion formerly of these under other causes of death; but after making all allowances, it seems to me without question that an increase equaling 40% has taken place.

A very important sanitary problem is here presented to the health authorities. What are the factors in the lives of the inhabitants of our large cities (for I have found that similar increases less extensive, however, have taken place in London, Paris and Berlin) which have caused such a remarkable increase in the prevalence of these affections, and how are these factors to be removed?

The time at our disposal does not permit of more than this elementary and cursory review of the work in preventive medicine. Sufficient facts have, however, been adduced to show how great have been its achievements, and some of the directions have been indicated in which its scope should be extended. With such extensions, and many others not mentioned, the future possibilities of preventive medicine seem to be even greater than the past achievements, for almost every development in bacteriology opens up a new field of work for the sanitary authorities.

Original Articles.

A CONTRIBUTION TO THE PATHOLOGY OF HYSTERIA BASED UPON AN EXPERIMENTAL STUDY OF A CASE OF HEMIANESTHESIA WITH CLONIC CONVULSIVE ATTACKS SIMULATING JACKSONIAN EPILEPSY.[1]

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THE following observations are offered as a contribution to the pathology of hysteria. The experimental results obtained confirm the modern theory of the disease and corroborate the various and numerous observations which have been made of recent years in France, Germany, and this country. These researches have compelled us to recast our views of the pathology of hysterical phenomena, though a knowledge of this work has not yet found its way into textbooks. This is our reason for presenting this study before this Society.

The pathology as laid down in textbooks may be exemplified by the following references:

Walton (Wood's Handbook) states: "Post-mortem investigation gives no clue to the morbid process, and theoretic study of its nature has led, as yet, to little more than conjecture. . . . Most of the paralytic symptoms, for example, are best explained on the supposition of decreased irritability of the cortical centres, while the spasmodic symptoms allow of explanation in part on the ground of their exalted irritability, and in part on that of diminished inhibition."

Gowers in discussing the pathology states that "hemianesthesia must be ascribed to an inhibition of a sensory center relatively low," and that

[1] Read at the meeting of American Association of Physicians, May 10, 1904.

"this disturbance of lower centers has disclosed facts (!) hitherto scarcely suspected and of much physiological interest regarding this capacity for limited functional derangement." He then goes on to explain hemianesthesia by inhibition, and infers a fanciful arrangement for its arrest, etc.

Sachs, although referring in a footnote to Breuer and Freud's classic work, which has helped to change our conception of the disease, contents himself with the opinion that "there is much room for theorizing, but there are very few facts to guide us," and that "the transfer of sensory disturbances from one half of the body to the other would go to show that the two halves of the brain are evidently in sympathy with one another (to put it broadly) in this disease, and that they can be alternately affected."

Dana attempts no theory.

Oppenheim makes a feeble reference to the psychic factors, but no attempt at explanation.

Lloyd (Nervous Diseases by American Authors) considers that "the pathology of hysteria is among the unsolved problems of the infant science of psychology."

Among the latest textbooks, Church and Peterson quote a few recent definitions, but practically do not consider the pathology.

Binswanger in his extensive treatise on hysteria (Nothnagel's Special Pathology and Therapeutics) quotes the work of the modern French school, but apparently without comprehending it. He lays down the following metaphysical postulate which seems to be absolutely devoid of meaning: "The hysteric alteration consists in a disturbance of the normal exchange between the psychic and the material processes. This occurs in two ways: on the one hand, the psychic process fails to be awakened parallel with a definite series of material cortical excitations, or are only incompletely aroused; on the other hand correlated with a material excitement of the cortex an excessive amount of psychic activity takes place which excites every variety of reaction to the whole innervation process which arises in or is controlled by the cortex."

Strümpel thus reasons: "If the normal exertion and inhibition of the will-power be broken down, so that *unreasonable* will-stimuli are created and reach the muscles, we have hysteric convulsions, contractures or cramps. If there are present in the consciousness images of awaited or feared objects, and if these images be intensified by the conditions of the disease into *true subjective irritations* of consciousness, we shall have hysteric pains and neuralgias."

The following comment on this is fairly deserved:

"This piece of scientific speculation, as to its lucidity, reminds one of the definition of love given by a Platonist: 'Love is the ideality of reality of a part of the totality of the Infinite Being.'"

All these earlier speculations are not only trivial, but are now known to be erroneous, for recent researches have thrown a great deal of light upon the pathology of the disease, although much remains to be done to give a complete understanding of it.

The study of the case here reported is of clinical interest in that —

1. It confirms the work of previous observers in regard to the nature of hysteric anesthesia. That is to say, the anesthesia is not due to inhibition of sensory centers or any kind of suppression of their activity; in fact is not true anesthesia at all, but is due to a dissociation of consciousness, probably corresponding to a functional dissociation of systems of cortical neurons.

2. It shows the purely functional character of the epileptiform attacks and their origin in dissociated psychic states.

3. It emphasizes the importance of understanding the pathology of the attacks in order to effect a cure.

History. — Mr. M., aged twenty-one years, was born in Russia, and came to this country four years ago. His family history, as far as can be ascertained, is good. There is no nervous trouble of any sort in the immediate or remote members of his family.

The patient himself has always enjoyed good health. He is a very intelligent young man of good habits. He does not use alcohol or tobacco and gives no venereal history.

He was kindly referred to us by Dr. K. M. Davidson of Boston for epileptiform attacks and anesthesia of the right half of his body. The attack is preceded by an *aura*, consisting of headache and a general feeling of malaise. The aura lasts a few days and terminates in the attack which always sets in about midnight, but *when the patient is fully awake*. The attack consists of a series of spasms, rhythmic in character and lasting about one or two minutes. After an interval of not more than thirty seconds, the spasms set in again. This condition continues uninterruptedly for a period of five or six days (a sort of status epilepticus), persisting during the time the patient is awake, and ceasing only during the short intervals or rather moments of sleep. Throughout the whole period of the attacks the patient is troubled with insomnia. He sleeps restlessly for only ten or fifteen minutes at a time. On one occasion he was observed to be in a state of delirium as found in post-epileptic insanity and the so-called "Dammerzustande" of epilepsy. This delirium was observed but once in the course of five years. The regular attack is not accompanied by any delirious states or "Dammerzustande." On the contrary, during the whole course of the attack the patient's *mind remains perfectly clear*. He does not lose consciousness even for a moment, and not the least trace of emotional disturbance, such as fear, for instance, can be found. During the period of the attack the whole right side becomes anesthetic to all forms of sensations, kinesthesia included, so that he is not even aware of the spasms unless he actually observes the affected limbs. Otherwise he remains unconcerned, perfectly *placid* and unruffled, as if nothing special is happening to him.

The affected limbs, previously normal, also become paretic. After the attack has subsided, the paresis and anesthesia persist (as sometimes happens in true idiopathic epilepsy) for a few days, after which the patient's condition remains normal until the next attack. After his last attack, however, the anesthesia and paresis continued for about three weeks.

The first attack occurred five years ago, since which time, up to his last year, he has had every year one

attack which, very curiously, sets in about the same time, namely, about the month of January or February. During the last year, however, the attacks have increased in frequency, so that the patient has had four at intervals of about three or four months. On two different occasions he was in the Boston City Hospital for the attacks.

Examination.— Examination of the patient, made three weeks after the last attack, showed the following: Pupils are equal and react promptly to light and accommodation. Knee jerks slightly exaggerated. No ankle clonus. No Babinsky. There was a profound right hemianesthesia including the right half of the tongue, with a marked hypo-esthesia of the right side of the pharynx. All the senses of the right side were involved. The field of vision of the right eye was very much limited. The ticking of a watch could not be heard more than three inches away from the right ear. (Hearing in left normal.) Taste and smell were likewise involved on the right side. The muscular and kinesthetic sensations on the right side were very much impaired.

The patient's mental condition was good. He was well balanced, and did not give evidence of any emotional disturbances. He states that he has few dreams and those are insignificant, concerned as they are with the ordinary matters of his daily life. Occasionally he dreams that he is falling, but there is no definite content to the dream.

These findings were indicative of functional rather than organic disease. The *previous history* of the case was significant. The first attack came on after peculiar circumstances, five years ago, when the patient was sixteen years of age and living in Russia. After returning from a ball one night, he was sent back to look for a ring which the lady, whom he escorted, had lost on the way. It was after midnight, and his way lay on a lonely road which led by a cemetery. When near the cemetery he was suddenly overcome by a great fright, thinking that somebody was running after him. He fell and lost consciousness. By the time he was brought home he had regained consciousness, but there existed a spasmodic shaking of the right side, involving the arm, leg, and head. The spasm persisted for one week, during which time he could not voluntarily move his right arm or leg, and the right half of his body felt numb. There was also apparently a loss of muscular sense, for he states that he was unaware of the shaking of his arm or leg unless he looked and saw the movements. In other words, there was right hemiplegia, anesthesia, and spasms. For one week after the cessation of the spasms his right arm and leg remained weak, but he was soon able to resume his work, and he felt as well as ever. Since then every year, as already stated, about *the same month* the patient has an attack similar in every respect to the original attack, with the only exception that there is no loss of consciousness. Otherwise the subsequent yearly attacks are photographic pictures, close repetitions of the original attack.

This history, obtained from the patient himself and his family, was still further suggestive, though not a proof of the functional character of the attacks. Furthermore, even though functional, nothing was evident to show the deeper pathology of the affection; that is to say, the exciting and underlying cause of the attacks and the anesthesia.

A series of experiments accordingly was undertaken for this purpose. First, as to the *anesthesia*. If the anesthesia was hysteric, as is now well known, sensory impressions ought to be felt, even though the patient was unconscious of them, and we ought to be able to get sensory reactions of a wellknown sort.

Tests showing the functional nature of the anesthesia. Visual hallucinations.— The experiments which were made to determine the nature of the anesthesia produced interesting results. These experiments are of a wellknown class which have been frequently made use of to show that the anesthesia is not a true anesthesia, but that impressions from the anesthetic parts which seem not to be felt are really perceived subconsciously.

They may be made in several different ways. The method we made use of consisted in producing a visual hallucination whenever the anesthetic hand was touched. That is to say, if the anesthesia is functional, although the subject does not consciously perceive the tactile impressions, he sees the image of a number which corresponds with the number of times the hand is pricked or touched. This was found to be the result in this case. Whenever the hand was pricked a certain number of times successively, he always saw that number as an hallucination. The number was always correct, and showed that subconsciously the pricks must have been felt.

The details of the experiment were as follows: The anesthetic hand was placed behind a screen and the patient was told to look in a glass of water and tell what he saw there. Impressions made on the anesthetic hand gave rise to visual hallucinations symbolically representing the sensory stimuli. Thus, for example, when his hand was touched, very lightly, five times, he saw the figure five very vividly and described it in detail. He saw the number written; it looked very large; and he saw it written on the back of a hand.

The intensity of the hallucination was well brought out when, projecting the hallucinatory hand on a screen instead of in the water, the patient outlined it with a pencil. When one of us placed his hand on the screen by the side of the hallucinatory hand and the patient was asked to tell which hand looked more real, he insisted that both hands looked equally real, except that the hallucinatory hand looked a little farther away.

Other tests also showed that the *subconscious* reactions to impressions from the anesthetic hand were more acute than the conscious reactions to impressions from the normal hand. So we have the so-called "psychopathic paradox" that *the functional anesthesia is hyperesthesia.* (Sidis.)

It is perfectly evident then that there could be no inhibition of the sensory centers, or suppression of their activity, or whatever else it may be called. In spite of the apparent profound anesthesia the pin pricks were felt and perceived. The perception of them gave rise to hallucinations of a character that showed the pin pricks were counted and localized in the hand. The result of these tests is in accord with previous observations which have demonstrated that in hysterics all sensory impressions received from anesthetic parts, while they do not reach the

personal consciousness are, as it is called, subconsciously perceived. The accepted interpretation of such phenomena is this: Inasmuch as the sensations are perceived, the failure of the subject to be conscious of them must be due to a *failure in association*. The perception of the sensation is *dissociated* from the personal consciousness. More than this, these dissociated sensations are capable of a certain amount of independent functioning; hence the hallucinations, and hence the wellknown failure of hysterics to be incommoded by their anesthesia. This condition of dissociation is now recognized as that underlying hysteric anesthesia.

Study of the attacks.— For the purpose of studying the attacks themselves, the patient was hypnotized. He went into a deep somnambulic condition, in which, however, the *anesthesia still persisted*. This showed that the dissociation of the sensory impressions was unchanged. In hypnosis he related again the history of the onset of the trouble. But now his memory became broader and he was able to give the additional information, which he could not do in his waking state, that at the time he was frightened he fell on his right side. Moreover, he recalls what he does not remember when awake, that throughout the period of his attacks when he falls asleep, he has very vivid dreams of an intense hallucinatory character, all relating to the fright and fall of five years ago. In these dreams he lives over and over again the experience which was the beginning of his trouble. He again finds himself in his little native town, on a lonely road; he thinks some one is running after him; he becomes frightened, calls for help, falls, and then wakes up with a start, and the whole dream is forgotten. After he wakes he knows nothing of all this; there is no more fear or any emotional disturbance; he is then simply distressed by the spasms.

Subconscious reproduction of the attacks.— While testing the anesthesia during hypnosis, an attack developed; his right arm and leg began to shake, first mildly, and then with increasing intensity and frequency. His head also spasmodically turned to the right side. The movements soon became rhythmic. Arm and leg were adducted and adducted in a slow rhythmic way at the rate of about thirty-six times per minute. With the same rate and rhythm, the head turned to the right side, with chin pointing upward. The right face was distorted by spasm, as in great pain. The left face was unaffected. Pressure over his right side (presumably where he struck when he fell) elicited evidences of great pain. Respiration became deep and labored, and was synchronous with each spasm. The whole simulated Jacksonian epilepsy. It is noteworthy that the knee-jerk on the right side was exaggerated by comparison with the left during the attack. Consciousness persisted unimpaired, but showed a curious and unexpected alteration. When asked what was the matter, he replied to our surprise, in his native dialect (a German dialect), " I do not understand what you say." It was found that he had lost all understanding of English, so that it was necessary to speak to him in German. His answers to our questions made it apparent that during the attack, as in his dreams, he was living through the experience of five years ago which had originally excited his trouble. The attack was plainly an hallucinatory one. He said that it was now 1898, that he was sixteen years old, that he was in Rovno (Russia), that he had just fallen because he was frightened, that he was lying on the roadside near the cemetery, and that he wanted somebody to pick him up. The hallucinatory state developed further, the patient living through, as in a dream, the whole experiences that had taken place at that period. Now he was in a carriage, though he did not know who put him there. Then in a few moments was again home, in his house, with his parents attending on him as in the onset of his first epileptiform seizures. The attack terminated at this point, and thereupon he became perfectly passive, and when spoken to answered again in English. Now he was again twenty-one years old, was conscious of where he was, and was in absolute ignorance of what had just taken place.

Disappearance of the anesthesia and automatic reproduction of the attacks. — It was found that an attack could regularly and artificially be induced if the patient in hypnosis was taken back by suggestion to the period when the accident happened.

The experiment was now tried of taking him back to a period antedating the first attack. He was told that he was fifteen years old, that is, a year before the accident occurred. Now again he could no longer speak or understand English, he was again in Rovno, engaged as a salesman in a little store, had never been in America, and did not know who we were. Testing sensation, it was found that it had spontaneously returned to the hand. *There was not a trace of the anesthesia left.* The hand which did not feel deep pin pricks before now reacted to the slightest stimulation. *Spontaneous synthesis of the dissociated sensory impressions had occurred.* Just as formerly before the accident, sensation was in normal association with the rest of his mental processes, so now this association was re-established with the memories of that period to which the patient was artificially reduced.

The patient was now (while still believing himself to be fifteen years old) taken a year forward to the day on which the accident happened. He says he is going to the ball to-night. He is now at the ball; he returns home; he is sent back to look for a ring. Like a magic formula it calls forth an attack in which again he lives through the accident, — the fright, and the spasms. With the onset of the spasm, dissociation again occurs, the *hand becomes anesthetic* and remains anesthetic after the subject is awakened.

It was thus possible to reproduce an attack at any time with clock-like precision by taking him back to the period of the accident, and reproducing by an hallucination all its details. Each time the fright and the physical manifestations of the attack (spasms, paresis, and anesthesia)

developed. These induced attacks were identical with the spontaneous attacks, one of which we had occasion to observe later.

RELATION TO VARIOUS FORMS OF NEUROSES. — This case is similar to cases of this sort which had been studied by Janet in France, Breuer and Freud in Germany, and a number of cases studied in this country by Sidis and Prince.

The question is further raised by such cases as this, whether some of those cases of fear neuroses studied by one of us (Prince) in which there are manifested all the physical manifestations of fear, without the presence of the emotion itself — thus presenting a psychic paradox — whether some of these cases have not as a foundation a subconscious and unrecognized fear.

PATHOLOGY. — This analysis enables us to understand to a large extent the pathology of the attacks. At the time of the accident the intense emotional disturbance, the fright, acted as a dissociating agent, and dissociated the sensory and motor images of one half of the body in such a way that they were no longer in *rapport* with the personal consciousness. These dissociated elements were not, however, inhibited, or incapable of functioning, as is shown by the hallucinations and other phenomena brought out in the test experiments. In cases of this kind, dissociated sensory and motor images become what is called "subconscious" and capable of automatic activity. Sensory impressions are subconsciously perceived, and motor images subconsciously excited. The dissociation (through the influence of the emotion) of these sensory and motor images and their automatic subconscious excitation *is* the attack. The original emotion, fear, remains (unknown to the subject) dissociated in the subconsciousness as a fixed state. Here from time to time it acquires a separate and independent activity. At periodic intervals, as under the stress of some emotion, or by association of ideas, its dormant activity is awakened and, though still unknown to the patient, gives rise to the same sensory-motor disturbances which characterized the original experience. These subconscious dissociated states are so much more intense in their manifestations because of being cut off, by the very fact of their dissociation, from the inhibitory influences of the normal mental life.

The pathology of such cases as this and of hysteria in general, then, consists on the one hand in the dissociation of the mental (and cerebral) processes, and on the other hand in the independent and automatic activity of the disaggregated psychic (and cerebral) states. Dissociation and automatism are the two fundamental processes.

The case furthermore gives an insight into the nature of many of the cases of "traumatic neuroses," of "psychic" epilepsy, of hystero-epileptic seizures, and of some forms of insistent ideas and impulses.

TREATMENT (*reassociation*). — Once a case of this kind has been analyzed and its pathology determined, it is possible to bring about a cure by synthesizing the dissociated mental states with the waking consciousness; or, in popular language, by making the mind whole once more. For this purpose the dissociated lost memories are brought into the full light of the waking consciousness, which is thus made to have a complete knowledge of them. So long as normal associations are maintained between the *lost memories* (or mental states) and the normal mental life, the system which before was dissociated can no longer be thrown into independent activity, and the train of symptoms to which that activity gave rise can no longer appear.

That is what we did in this case: In hypnosis he was made to realize that he was twenty-one years old; he was given a knowledge of his present life, of the subconscious states with their attacks, and was made to realize the absurdity of his really being sixteen years old. In his waking life he was made to remember all the events of the incident. The subconscious and the waking memories were thus united. During the whole course of treatment by association, a course which covered a period of several weeks, the dissociated system was coming to the surface of consciousness more frequently, and in a fuller and more developed form. The attacks were more frequent, but of shorter and shorter duration, lasting but a few hours instead of several days. Finally the system became stable and permanently associated.

After the stability of association was effected, it was found that he could no longer be made to pass into that particular hypnotic state. The subconscious fear could no longer be excited. The attacks could no longer be artificially induced; indeed the anesthesia and the spasms could no longer be developed.

Although there is no reason to suppose that he is not cured, for a complete proof of a cure (a year or more must pass), still, as the attacks cannot be artificially induced, it is not probable that they can be excited by the associations which usually call them forth.

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Clinical Department.

A CASE OF STONE IN THE BLADDER IN A BOY OF FIFTEEN.

BY RICHARD FROTHINGHAM O'NEIL, M.D., BOSTON,
Assistant Surgeon, Genito-Urinary Department, Boston Dispensary; Assistant Surgeon to St. Elizabeth's Hospital.

THE following case is reported as being somewhat out of the usual run, because of the age of the patient, the size of the calculus, the peculiarity of the nucleus, and of some of the symptoms.

A. B., fifteen years old, school boy, was referred to me by Dr. E. P. Joslin for treatment. The history ofwas as follows: Family history, mother died of phthisis when he was an infant; only child. Previous history, negative.

Present illness. — Eighteen months ago he began to have trouble with his urine. It began as a "burning and scalding," with pain at the base of the penis and in the suprapubic region. He said that at one time he had had a slight discharge from the urethra and had, on one occasion, passed blood from urethra. There was no other history of venereal disease or exposure. Six months after the onset of the attack, the right testicle became swollen, and he was obliged to stay in bed for a few days. He has been getting up from two to six times every night to micturate, and during the day he suffers more from imperative than from frequent micturition. He has pain before, during, and after micturition. Urine dribbles at times, and is passed sometimes with a good deal of straining and tenesmus. He is not made worse, to any extent, by exercise. He is able to play with the boys. His urine, according to his statement, "never stopped short in the middle of a full stream, but he was unable to pass it at times unless after taking nitre."

One day in my office he was only able to pass a little urine until he had made pressure on the base of his bladder through the rectum with his finger, after which he passed several ounces; this method he had only found out in the last few days. He said the urine at times was very thick, much more so than when I first saw him. He complained of a mucous diarrhea, and had passed some blood by rectum. He had not lost weight. Appetite good. He is greatly bothered by frequent and painful micturition at night, and shows the effects of loss of rest.

He has taken at various times solutions of potassium acetate and citrate, with tincture of hyocyamus.

Examination. — Well developed and nourished boy. Heart and lungs negative. External genitals large, nothing abnormal. Right epididymis slightly more palpable than left. Prostate a little enlarged and somewhat tender, more on the right. Urine very turbid, containing large shreds, much mucus and pus.

Chemical examination. — Pale, specific gravity 1012, acid, urea .69, albumen, trace.

Sediment. — Much pus, some bladder epithelium; no renal elements could be found.

Neither tubercle bacilli nor gonococci found after very careful search. Enormous number of mixed organisms present; the colon bacillus seemed to predominate.

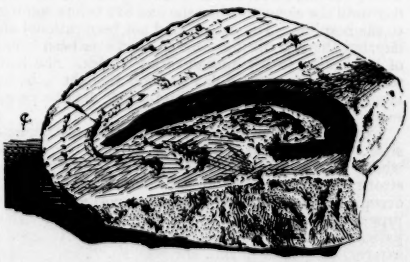
There were two ounces of residual urine drawn with soft catheter. The tolerance of the bladder was between four and five ounces of irrigation fluid. There was a good deal of tenderness and resistance in the deep urethra. Examination under ether advised, the provisional diagnosis being either stone or tubercular disease.

On Feb. 22 patient entered the Deaconess Hospital, having been treated for a few days with bladder irrigation and urotropin, grs. viiss, twice a day, without benefit. Two days later, under ether, a stone was readily detected with the searcher; it was on the right side of the internal meatus, and seemed to be adherent. With the cystoscope (Nitze, size 22 being used), the rough white surface of the stone could readily be seen filling the entire field of the instrument, but the working space was so small that it was impossible to say whether or not in different fields we were looking at the same stone or multiple ones. The stone could not be felt bimanually.

Suprapubic cystotomy was decided upon and performed at once. The bladder was more distensible under ether. The peritoneum was found low down; it was pushed back out of the way, the bladder opened, and the stone delivered with some difficulty. It was found standing on end, so to speak, and had to be enucleated from a pocket it had made in the base of the bladder to which it was adherent for about two thirds of its length. This partial fixation accounts for his not having more trouble when taking exercise, the fact of the stone being a light phosphatic one probably had something to do with it also. The bladder was closed up tight around a half-inch rubber tube with plain catgut, the rest of the wound sutured with silkworm gut, and a small gauze drain put in the prevesical space. Syphon drainage was established and the bladder washed twice a day through and through by the urethra. After five days the tube was changed for a smaller one, and in four days more this was taken out, the wound drawn together, and urethral drainage established. The suprapubic wound leaked for forty-eight hours only after the tube was removed. The catheter was removed in six days and micturition was normal. The patient was up in three weeks, and out in four weeks after the operation, entirely relieved of all subjective symptoms.

Convalescence was uneventful, except on the second night after the operation, when there was a sharp reaction, due probably to infection of the raw surface of the bladder, the temperature going to 104° and the pulse to 116. There was spasm and tenderness over the left kidney and ureter. The urine was dark, and filled with blood and shreds of tissue, having the appearance of a severe hemorrhagic cystitis. There was a little albumen, but no renal elements could be found. The patient was given salt solution by rectum. The next day the temperature was 100° and normal from then on. On the fourth day the blood in the urine had disappeared. The twenty-four-hour quantity had always been sufficient, in fact a slight polyuria.

Two months after the operation the patient is perfectly well, except at times the urine is slightly turbid and contains a few shreds and slight amount of pus. This is probably due to a slight urethro-cystitis, which is gradually disappearing under urotropin and occasional irrigation. Can find no evidence of any trouble with the kidneys.



Longitudinal section of calculus. Actual size.

Examination of the calculus by Dr. R. L. Emerson of the Harvard Medical School is as follows: Dimensions, $2\frac{3}{8}$ x $1\frac{1}{2}$ x $1\frac{1}{16}$ in. composed of calcium phosphate with a little calcium carbonate, the nucleus being some gummy, resinous substance like a medicated bougie (see cut). I have been able to get no history from the pa-

tient as to how it came to be there. There has been no instrumentation of the urethra except on one occasion, a year after the onset of his symptoms, when a physician washed out his anterior urethra. The boy may have had an attack of urethritis and introduced the bougie himself as a curative measure.

I am very much indebted to Dr. F. J. Cotton for assistance during the operation. The early and excellent result obtained in this case was due in no small measure to the care with which the drainage apparatus was watched at the hospital.

A CASE OF LABOR IN AN EPILEPTIC.[1]

BY ANNIE LEE HAMILTON, M.D., BOSTON.

THE case I am to report this evening entered the New England Hospital Dec. 11, 1903, during the service of Dr. Marion Nute. The patient's physician had accompanied her because, he said, he wanted us to know that the case was one of epilepsy rather than uremia.

The family history was negative. The patient was a primipara, married; twenty-six years of age; whose general health was said to have been good excepting the epileptic attacks to which she had been subject for twelve years. The first convulsion occurred when she was fourteen years old, at her first menstrual period. The first two attacks were thought to be purely hysterical, as the patient did not lose consciousness, but twitched, struggled and threw herself about. With the third attack, she lost consciousness and foamed at the mouth. This time, it was considered true epilepsy, and since then the attacks have been more or less frequent, usually associated with the menstrual period. She sometimes had as many as two or three attacks in a week. During her pregnancy they were less frequent up to the sixth or seventh month, then rather more frequent between the seventh and eighth months.

Up to Dec. 8 (four days previous to her entrance), she had not had a convulsion for four weeks. On Dec. 8 she had three, and two or three on each ensuing day until the eleventh when she had five before coming to the hospital. The patient had not been rational all day, but this was the first time she had ever been "out of her head" to her husband's knowledge. She had seemed to be in pain all day and was thought to be in labor. She was about eight and a half months pregnant.

Examination showed the patient to be a medium-sized, dark-complexioned, young woman, face somewhat cyanosed; unconscious; rather restless; pulse strong, full, regular. Heart normal. The fetus occupied the right sacro anterior position, breech presenting. The heart was loud and strong. The patient's pelvic measurements were fairly good; external conjugate 19 cm., ant. sup. sp. 22 cm., crests 24.5 cm., between trochanters 29 cm. Internal examination showed the os dilated to the size of a quarter, with a small part presenting, and the diagnosis of footing presentation was made.

The patient resisted examination, throwing herself about on the table and appearing to have severe pain. Just as she was taken from the table she had another attack, lasting three minutes. A hasty examination of the urine showed specific gravity 1,030, reaction acid, merest trace albumin, urea 2.14%. At seven o'clock the patient had another attack lasting about three minutes. This appeared as follows: The eyes became fixed and staring, jaws tightly closed and whole body rigid; the face cyanosed, and the head turned to the left side. The breath held and finally caught with a great gasp. Then the twitching of face, hands and whole body began, at first fine, later of greater amplitude, then ceasing altogether. The face regained its normal color and the patient sank into a stupor, snoring loudly, foam escaping between the lips. There was no cry with this attack. She remained in this stupor for about an hour gradually recovering consciousness sufficient to answer questions in a stupid way. It was decided to dilate manually and deliver. As the patient now resisted manipulation very little and as it was felt that the smallest amount possible of ether should be given, the dilatation was started without an anesthetic and continued until nearly complete. As the pains now started in with renewed energy (they had been occurring at intervals of ten minutes all the evening) it was decided to see what work the presenting part would do in dilatation, and manipulations were stopped for the time. We did not wish to rupture the membranes, as the cord was coiled in the presenting pouch. At 11 P.M. she had another convulsion resembling the one described, but beginning with the true epileptic cry and lasting somewhat longer. The fetal heart remained strong, but we decided that it would be better to delay delivery no longer and, as soon as the patient's breathing and color improved sufficiently, started the ether, completed dilatation, ruptured the membranes and delivered a living male child somewhat asphyxiated but soon resuscitated by immersing alternately in hot and cold water and which cried quite vigorously. Child's weight 2,170 gm., about 4¾ lbs. The placenta and membranes intact were expelled five minutes later. There was no laceration. The patient's pulse was 132, strong and full. She soon apparently recovered from ether, but did not recover consciousness. Rested quietly until 3 A.M., when she had another convulsion lasting about three minutes, resembling those described. After this she slept five hours. At 8 A.M., Dec. 12, she seemed rational and gave clearly some of the details for the birth certificate, but could not remember her street or number. She took nourishment readily. In the afternoon she became more stupid and answered no questions except when asked if she had seen her baby, when she answered "No."

Dec. 13, third day, T. 98.6°, P. 68, R. 20.

Patient seemed more stupid to-day; her appearance has changed. In the morning she had a fixed stare and seemed to hold her face and jaw perfectly rigid. Her body was stiff and she clutched the bedclothes with arms rigidly extended. She drooled from the mouth. Respiration stertorous, could be plainly heard outside the room. Pupils even, rather dilated. Tongue slightly coated. When asked to show it, and chin tapped with the finger, the mouth was slightly opened and the tongue very slightly protruded. In the afternoon another change came. She became much more restless, the limbs moved constantly, and her whole body twitched, her face worked and her eyes rolled, with staring expression. Several times it was thought that she was about to have another convulsion, but she did not. She attempted to sit up in bed once or twice. Her breathing could still be heard outside the room. She did not show any intelligence whatever except when the baby was mentioned. When asked what she would name it she brightened up and said, "Charlotte." It will be remembered that the child was a boy. Evening, T. 99.4°, P. 92,

[1] Reported at the meeting of The Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 23, 1904.

R. 22. Catheterization necessary. There was no more albumin and the urine was reported normal. Feces were passed in the bed.

Dec. 14, fourth day, T. 99.2°, P. 56, R. 20. The patient did not sleep all night; was very restless but quieted by sodium bromide. Constantly moving all day, but did not speak until evening when she asked to see her baby. It was brought and she said she would name it Charlotte, she kissed it and showed considerable interest in what was going on around her. She passed urine and feces involuntarily. When the urine was not passed for eight hours she was catheterized. She took nourishment readily and would take a piece of bread in her own hand and eat it. P.M., T. 99.8, P. 68, R. 22.

Dec. 15, fifth day, A.M., T. 99.2°, P. 56, R. 20. Patient rested better during the night. In the morning the twitching had ceased and she lay perfectly rigid in bed. Did not appear as bright as last evening. Asked for her baby and showed interest in it. After dinner she began repeating short sentences over constantly to herself. She said, "I'm going to keep it, anyhow — papa won't let him come home, but I'm going to keep it, anyhow." Visited by her husband and sister, she recognized the sister, but did not admit that she recognized the husband; it was thought that she did, however. T. 99°, P. 60, R. 18, P.M.

Dec. 16, sixth day, A.M., T. 98.6°, P. 60, R. 22; P.M., T. 99.6°, P. 60, R. 20. Answered some questions in a rational manner, at other times stared vacantly at the questioner. Went to sleep at 10 A.M. and slept, except when wakened for nourishment, etc., the entire day and until early next morning.

Dec. 17, seventh day, T. 98.6°, P. 72, R. 20. Talked incessantly all day in an irrational way, was very restless, insisting upon sitting up, and once jumped out of bed. Dr. James J. Putnam was asked to see the patient in consultation. He thought no definite opinion of the case could be given as yet. It might be simply a post-epileptic condition which would clear up or possibly would develop into a puerperal mania. Advised very close watching. No special change in the treatment. With the next day came a marked change.

Dec. 18. Patient slept from 11.30 to 5.30, waked up quite rational, told of various affairs in her early life, and although she wandered a little at times kept to the line of thought remarkably well. After this she improved steadily and by Dec. 25 was "looking brighter than for some months," the family said. The pelvic condition was good from the first, and Dec. 22 the patient sat up in a chair and felt very well.

Dec. 29. In the morning while sitting in a chair reading, she had a convulsion and fell on the floor. This attack lasted about three minutes but was not severe; patient slept only fifteen minutes afterwards and then sat up apparently all right. When asked if she had had any warning of the attack, she said she had felt very well and had had no queer sensations such as she used to have before attacks. There was no cry.

Dec. 31. Patient sent home; general condition very good. Pelvic condition good.

With regard to the treatment while in the hospital it was chiefly symptomatic. Elimination was carefully looked after, the bowels moving several times daily. The nervous symptoms were treated with sodium bromide and hydrotherapy.

In response to a note sent to the husband I learn that since the return home her convulsions have been decidedly less frequent. This is no doubt due to the fact that she is kept under the care of her physician who is treating her with bromide.

The baby did very well for the first week, but after that looked badly and did not gain although he took his food well and apparently digested it. During the second and third week he failed perceptibly. When the patient was sent home, the child did not accompany her, but was cared for outside by a nurse, and lived only one week after leaving the hospital, dying in convulsions.

In looking in rather a hasty way over the literature of the past twenty-five years, I find very little reported with regard to this condition. It is apparently an unusual one as, although puerperal convulsions are unfortunately very common, they are, as a rule, due to uremia.

Edgar, in his "Practice of Obstetrics," says: "Epilepsy is a rare complication, because epileptics are usually sterile, and if gestation does occur are often free from an attack during pregnancy, the disease returning during the lying-in state. It may be confounded with an eclamptic attack. Children born of epileptics usually die of congenital epilepsy when quite young." Various other authors whose books I consulted do not speak of the condition, or only mention it in passing on to eclampsia.

Eben Duncan, Glasgow, who has made a study of the subject, says: "The discovery of albumin in the urine of a woman who has had several epileptiform convulsions is not necessarily evidence of uremia. It has been proved that albumin is the effect and not the cause of the fits."

In conclusion, I wish to thank Dr. Nute for permission to report the case, and Dr. Blanche Boyle, who was interne during the service, for her excellent notes from which I have drawn freely in writing this paper.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION. SECTION ON PRACTICE OF MEDICINE.

(Continued from No. 24, p. 654.)

SECOND DAY. JUNE 8. — (Continued.)

A STUDY OF ONE HUNDRED AND EIGHTY-SIX CASES OF MITRAL AND TRISCUSPID STENOSIS.

DRS. JUDSON DALAND and E. L. MCDANIEL, of Philadelphia, made a report on a heart showing mitral and tricuspid stenosis, and gave an analytical and statistical study of 186 cases of this affection that had appeared in literature from 1809 to 1904. In 157 cases the age of the cases, 14%, occurred between the ages of ten and twenty, 40% between twenty and thirty, 26% between thirty and forty, 12% between forty and fifty, 4% between fifty and sixty, and 1% between the ages of sixty and seventy. Males were afflicted in 21%. All cases occurred in the white race. In 21% of the cases it was distinctly stated that rheumatism was not the cause. From the observations made, the only important known cause of this affliction

was rheumatism. Difficulty in breathing occurred in 35% of the cases; dropsy occurred in 34%, cough in 9%. Pericardial pain and distress 12 cases, epigastric 3 cases, angina pectoris one case. Asthenia 10 cases. Hemoptosis 6 cases, vertigo 5 cases, embolism 3 cases, jaundice 3 cases, vomiting 3 cases. In 31 cases the apex beat was in the fifth or sixth interspace. Presystolic murmur was heard in the mitral area in 41 cases; in the tricuspid area in 11 cases. The systolic murmur was best heard at or near the apex in 30% of the cases, and over the base of the heart in 15%. In 31 cases a presystolic thrill was observed at the apex, and in 9 cases a systolic thrill. Aortic stenosis was discovered in 30% and aortic insufficiency in 16 cases. The average weight of the heart was 15.8 oz. Albuminuria was present in 37 cases.

PLEURAL EFFUSIONS IN HEART DISEASE.

DR. J. DUTTON STEELE, of Philadelphia, presented this paper. He said that he had already called attention to the fact that passive pleural effusion might occur in the course of failing compensation of the heart, before there was any tendency to external dropsy, and that this pleural effusion was very often unilateral, with a preference for the right side. This conclusion had been arrived at from a study of 75 autopsies and a series of 17 cases which Dr. Stengel's had investigated. It was the general opinion that hydrothorax was apt to occur before general edema, though many observers had reported isolated cases of right-sided cardiac hydrothorax. In deciding between cases of cardiac effusion and effusion from other causes, it was required that there should be decided evidence of myocardial disease and enlargement of the heart, and also that the cardiac condition should be predominant. A very interesting point shown by a study of these cases was that while right-sided effusions occurred with enlargement of the right heart, left-sided effusions were usually associated with the left side of the heart. The theory that appeared to explain most satisfactorily the preference of these pleural effusions for the right side, supposed that enlargement of the heart and especially of the right auricle could press upon the root of the right lung and obstruct the vena azygos major. However, the pressure of a dilated auricle upon the root of the left lung would not obstruct any large venous trunk analogous to the vena azygos major. He could not explain this, but could only call attention to the fact that left-sided cardiac dilatation seemed to bear some relation to left-sided pleural effusions. The effusion in certain cases was very obstinate, lasted a long time and returned quickly after aspiration. It was important that we should recognize that such effusions occurred in heart disease in the diagnosis of both cardiac and pleural affections.

PROLONGED DELIRIUM IN PERICARDITIS AND ENDOCARDITIS, WITH THE REPORT OF A CASE.

DR. E. M. GREENE, of Easton, Pa., said that all the authorities that he had consulted, while recognizing delirium as a frequent symptom in severe cases of pericarditis, especially where there was effusion, spoke of the delirium as being of short duration with marked cerebral symptoms, and usually associated with hyperpyrexia. He reported a case of acute rheumatism followed by endocarditis and with slight pleurisy with effusion. At the onset respiration ran up to 37 or 38 per minute, pulse to 100 to 108, temperature 100° to 101° F. Auscultation revealed symptoms of acute pleurisy and a systolic murmur over the pericardium, but more intense at the apex. His delirium lasted for five weeks; dyspnea was always present as was also cyanosis. The degree of fever was not sufficient to account for continuance of delirium through so long a period. Recovery took place slowly, but within a few months after the patient had returned to work, he was able to exercise at an elevation of 10,000 feet without discomfort, and subsequent physical examination revealed no marked lesion.

THE LIMITATION OF DIGITALIS IN MITRAL AND AORTIC REGURGITATION.

DR. FRANK JONES, of Memphis, Tenn., reviewed the anatomy and physiology of the heart. He said that the mitral valve located at the gateway between the great arterial reservoir, the left auricle and the arterial pumping station; the left auricle when it failed to close in systole threw its burden on various organs, the right heart, lungs, liver and kidneys. When compensation had failed or was failing the pathological picture was venous stasis. Edema and bronchitis would result in proportion to the degree of obstruction and stasis and the condition of the cardiac muscle. Nutrition was profoundly disturbed as a result of this stasis and engorgement. With this clinical picture there was no necessity of dwelling upon the marked effects of digitalis in mitral insufficiency with failing compensation. On the other hand digitalis was contra-indicated in aortic regurgitation. By anatomic location and physiologic action of the valves, when the aortic valve became incompetent and could not close with diastole, we had a backward column of blood thrown upon the left ventricle. In its effort to relieve the valve it becomes hypertrophied and there is a high blood tension. There frequently exists a well defined arteriosclerosis. He thought that to give digitials in such a condition was useless. Hyperemia venous stasis and dropsy are late symptoms, and in the majority of cases, when they do appear, the fault is at the mitral valve. The right and left ventricles are both so worn out that the administration of digitalis is useless or even harmful. Digitalis only increases the work of the ventricle while the ventricle calls for blood. When compensation fails the left ventricle goes to pieces. There was no justification for the use of digitalis in aortic regurgitation, no matter what might be the condition of the heart muscle. After a careful study of bountiful clinical material he was convinced that there was but one valvular lesion where digitalis was indicated, and that was mitral insufficiency, and then not until compensation had failed.

SOME POINTS IN THE ACOUSTICS OF RESPIRATION.

DR. CHAS. E. QUIMBY, of New York, presented this paper to demonstrate the following propositions: (1) The tracheal note represented the interference of pitch limit of respiratory sounds, and that limit might be defined by a letter of the musical scale, as might every other respiratory pitch. (2) In vesicular respiration, the inspiratory sound represented the superior pitch limit of respiratory sound. (3) The passage from vesicular respiration to bronchial breathing was attended, at first, by a lowering in pitch of the inspiratory note, and later by lowering of both inspiration and expiration. (4) In vesicular breathing the inspiration was of a higher pitch than expiration; in rude, bronchial and tracheal breathing, the inspiration was of a higher pitch than, or the same pitch as, expiration. There was no respiration resulting from consolidation in which expiration was of higher pitch than inspiration.

(To be continued.)

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REPORT OF ROYAL COMMISSION UPON HUMAN AND ANIMAL TUBERCULOSIS.

THE Royal Commission appointed by King Edward has, on May 16, 1904, published an Interim Report upon the following points:

(1) Whether the disease (tuberculosis) in animals and man is one and the same.

(2) Whether animals and men can be reciprocally infected with it.

(3) Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable or unfavorable to such transmission.

The greater part of this inquiry is directed to the view which had been expressed, that the bacillus which gives rise to tuberculosis in the bovine animal is specifically distinct from the bacillus which gives rise to tuberculosis in the human being, and that therefore the presence of the bovine bacillus in the milk or flesh of the cow, consumed as food by man, is not to be regarded as a cause of tuberculosis in the latter. To this point the Commission first gave its attention, and began the investigation, not by taking evidence, but by conducting experiments of its own.

The first line of inquiry may be stated as follows: What are the effects produced by introducing into the body of the bovine animal (calf, heifer, cow), either through the alimentary canal as food, or directly into the tissues by subcutaneous or other injection, tuberculous material of human origin, *i. e.*, material containing living tubercle bacilli obtained from various cases of tuberculous diseases in human beings, and how far do these effects resemble or differ from the effects produced by introducing into the bovine animal, under conditions as similar as possible, tuberculous material of bovine origin, *i. e.*, material containing living tubercle bacilli obtained from cases of tuberculous disease in the cow, calf or ox?

Material from more than twenty cases of tuberculous disease in human beings, was used in the experiments, including sputum from phthisical patients, diseased parts of lungs in pulmonary tuberculosis, tuberculous mesenteric, bronchial and cervical glands and tuberculous joints. The effects produced by these were compared with those produced by different strains of tuberculous material of bovine origin. In the case of seven of these strains of human origin, the introduction of the human tuberculous material into cattle gave rise at once to acute tuberculosis with the development of widespread disease in various organs of the body, such as the lungs, spleen, liver, lymphatic glands, etc. In some instances the disease was remarkably severe. In the remainder, the bovine animals were affected to a less extent, the disease being limited to the spot where the material was first introduced, or spread to a variable extent from the seat of inoculation along the lymphatic glands; but further transmission from these animals to other bovine animals ultimately gave rise in the bovine animal to general tuberculosis of an intense character. "We have very carefully compared the disease thus set up in the bovine animal by material of human origin, with that set up in the bovine animal by material of bovine origin, and so far we have found the one, both in its broad general features and in its finer histological details, to be identical with the other. We have so far failed to discover any character by which we could distinguish the one from the other; and our records contain accounts of the post-mortem examinations of bovine animals infected with tuberculous material of human origin, which might be used as typical descriptions of ordinary bovine tuberculosis." "The results which we have thus obtained are so striking that we have felt it our duty to make them known, without further delay, in the present Interim Report."

A further detailed report containing the results of experiments on more than two hundred animals, together with the discussions dealing with the influence of dose, of individual and of racial susceptibility etc., is in preparation. "Meanwhile we have thought it our duty to make this short report, for the reason that the result at which we have arrived, namely, that tubercle of human origin can give rise in the bovine animal to tuberculosis identical with ordinary bovine

tuberculosis, seems to us to show quite clearly that it would be most unwise to frame or modify legislative measures in accordance with the view that human and bovine tubercle bacilli are specifically different from each other, and that the disease caused by the one is a wholly different thing from the disease caused by the other."

The report is signed by all the members of the commission, namely, Professors Foster, Woodhead, Martin, McFadyean and Boyce.

DEDICATION OF THE NEW LABORATORIES AT THE UNIVERSITY OF PENNSYLVANIA.

WE commented some weeks ago on the prospective dedication of the new medical laboratories for the University of Pennsylvania. This dedication took place as arranged on the tenth of this month, and is to be regarded as one of the most significant events in the entire history of the university. Nearly twenty-two thousand invitations were sent to physicians in various parts of the world, among whom were included about six thousand graduates of the medical department of the university. The ceremonies were also so arranged that the members of the American Medical Association, which held its annual meeting at Atlantic City from the seventh to the tenth of June, could attend in a body.

In the absence of Dr. Weir Mitchell, it devolved upon Mr. J. Vaughn Merrick, a trustee of the university, to make the address of presentation. He drew attention to the extraordinary development of the institution during the time he had been connected with it as trustee, and expressed the hope and expectation that the new and extensive buildings would be the center of many useful discoveries in the future. The laboratories were formally accepted by Dr. Charles C. Harrison, provost of the university, who, in his felicitous remarks, forebore to urge the need of endowment which, nevertheless, he mentioned in a way to suggest to prospective benefactors a means of wise expenditure. Prof. H. P. Bowditch of Harvard University, in his address, spoke of the proper relation of the sciences, laying special stress upon physiology, the subject with which his name has been identified. In developing his subject, he alluded to the desirability of preceding the study of physiology by anatomy, and drew attention to the plan practiced in the Harvard Medical School since 1899, of devoting three half years successively to anatomy, physiology and pathology, thereby bringing about concentration of work and sequence of subjects. He maintains that this plan, now given four years' trial, has been successful. Dr. Bowditch proceeded to discuss the laboratory method of training and its limitations, and spoke a word in favor of the generally ostracized didactic lecture. He considered that both the laboratory and the lecture room were valuable as educational agencies, and that we should find a way of combining the two forms of instruction which should by no means completely do away with the lecture, and yet should give the practical laboratory instruction a large place.

Prof. R. H. Chittenden of the Sheffield Scientific School of Yale University spoke of the laboratory as a foundation stone upon which is to be reared our temple of knowledge, and urged the absolute necessity for the student, of personal work in laboratory methods. The history of physiological chemistry, a comparatively new science as applied to medicine, he sketched from its inception in about 1872 to its present wide development, both in this country and abroad. The importance of the subject, he ventured to prophesy, would continually increase in the near future, and come to occupy a more and more conspicuous position among the diversified branches of applied science. Dr. George Dock of the University of Michigan discussed the history of medicine from an early period down to the present time in succinct fashion. His special plea, coming down to the immediate needs of the present, was for a completer cultivation of pathological anatomy by the medical student and the physician, although he warned against the elevation of the laboratory in certain institutions as possibly leading to a top-heavy way of teaching by encouraging students to do advanced original work before their foundation was sure. He bewailed also the neglect, or at times objection to, autopsies, particularly in this country, in which he saw an inferiority to European methods. On this he said: "The difficulty in respect to autopsies does not depend on public sentiment alone, but on a certain neglect on our own part. I think we may hope that as pathology gets everywhere out of cellars and back rooms, and has localized habitation such as we see here, its cultivation will assume a broader and more independent character."

The formal exercises were brought to a conclusion by the address of Dr. Horatio C. Wood of the University of Pennsylvania. He, again, was somewhat retrospective, as no doubt the necessities of the occasion demanded, and also naturally spoke of the development of and necessity

for laboratories such as those now being dedicated. He spoke feelingly also of the burden of excessive teaching imposed upon men whose best efforts should be put into original investigation, a matter which should receive far more attention in our medical institutions than has hitherto been given it. Finally, he urged that we do not in the future forget laboratories in our eagerness to endow hospitals. It will not do to "prune the upper branches of that tree of knowledge which is for the healing of the people and to forget to keep alive the root which is the source of all continuing growth and fruitage."

In general, the occasion was memorable in more ways than one. It brought together a distinguished body of professional men; it emphasized, as has rarely been emphasized before in this country, the need and place of the laboratory in the general scheme of medicine, and enforced the lesson that, after all, the best medical education must come from the proper insistence upon the various methods of instruction rather than upon an undue devotion to any one. The addresses, the gist of which we have indicated merely, were peculiarly temperate in tone and represented the judicial frame of mind which has resulted from the ferment of the past few years.

MEDICAL NOTES.

A Centenarian. — Andrew Bradley, reputed to be one hundred and four years of age, died at the Soldiers' Home in Noroton, Conn., June 17.

Graduating Class of Johns Hopkins Medical School. — Forty-five degrees of doctor of medicine were conferred upon forty-two men and three women at the twenty-eighth commencement of the Johns Hopkins University recently held. The small proportion of women is worthy of note.

Smallpox in Chicago. — According to the bulletin of the Chicago Health Department for the week ending June 18, five cases of smallpox were discovered and removed to the isolation hospital during that week, none of whom had ever been vaccinated. The victims were all persons so employed as to be liable to spread the disease.

Boiler Explosions. — It is stated that statistical inquiry into boiler explosions during the year 1903, shows that the total number of explosions was 383, the total number of persons killed being 293, and the total number injured 522. This is a somewhat favorable showing as compared with previous years, but nevertheless is an extraordinary list of fatalities from a cause which might be regarded as preventable.

Railway Accidents. — According to *American Medicine*, during the last three months of 1903 the casualties on the railways of the United States amounted to more than 2,000 among passengers alone, 175 being killed. The casualties to employees were more than 12,000, about 1,000 being killed outright. The disproportion between the accidents to passengers and employees at least speaks well for the general care taken by the railway companies.

Philippine Government Exposition. — The largest single exhibit at the St. Louis World's Fair is the Philippine Government exposition. It is designed to combine a scientific interest for students of politics, civilization, economics and ethnology. It will also aim to demonstrate the grades of civilization of the various races found on the Island. The design of this exposition is to show what has been done and what is being done in the Philippines.

Honorary Degrees to Medical Men. — At the recent commencement exercises at the University of Pennsylvania the following honorary degrees were given to physicians: Doctor of Laws, Sir Frederick Treves, who has been on a tour through the western part of the country; Dr. H. P. Bowditch of the Harvard Medical School; Dr. H. C. Wood of the University of Pennsylvania. The degree of Doctor of Science was given to Prof. Russell Henry Chittenden of Yale University, and Dr. George Dock of the University of Michigan. It is of interest to note that of the seven honorary degrees conferred five went to medical men, due probably to the fact of their presence and participation in the recent opening of the new medical laboratories. It is, however, in general, observable that physicians have been honored by degrees in the past few years more widely than heretofore.

The Question of Doctors' Fees. — It is reported that a judge in St. Louis has recently given expression to the opinion that the financial condition of the patient should not be considered by the physician in his charge for professional services. The statement was that the character of the service, the seriousness of the complaint, the skill and time required, and the result reached, are elements to be considered, but not the wealth or poverty of the patient. This decision was handed down in a case against a physician for

an alleged exorbitant fee. However just such a decision may be theoretically, it is clear that its practical consequences would not conduce to complete justice. It would, for example, be an exceeding hardship to the poor, if only such considerations as those suggested by the presiding judge were taken into account. Doctors' fees, like lawyers' fees, must no doubt in general be determined by all the circumstances of the given case, among which the poverty or wealth of the patient must be given due weight.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 22, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 59, scarlatina 13, typhoid fever 15, measles 45, smallpox 0.

DONATION TO DARTMOUTH COLLEGE MEDICAL SCHOOL. — It is announced that the New Hampshire Medical Society, at its annual meeting, voted to donate $1,000 to Dartmouth College toward the erection of the new building for the medical school.

THE ADAMS NERVINE HOSPITAL. — According to the annual report of the resident physician of the Adams Nervine Asylum, the number of admissions during the year was 108, being eleven less than last year, and the total number under treatment was 149, or ten less than last year. It is stated that 86% of the present work of the year has been for patients who were wholly or in part beneficiaries of the asylum. The total number of free admissions was forty-five, the largest number in any one year since the asylum opened. The large amount of charitable work which this excellent institution does is not generally known in the community.

NEW YORK.

A NEW MEDICAL SCHOOL. — It is announced that in the autumn St. John's College at Fordham, Borough of the Bronx, which has hitherto not aimed to be classed as a university, will open a medical department. Later a law school is also to be established.

HOSPITAL FOR MALTA. — Mr. Henry L. Clapp, a New York merchant now residing on the Island of Malta, has announced his intention of erecting a hospital on American lines there, and has commissioned a firm of New York architects to prepare plans for the building.

THE LATE DR. J. M. POLK. — At the last meeting of the Medical Association of the Greater City of New York, Dr. Henry P. Loomis read an interesting obituary of Dr. John Metcalfe Polk, the son of Prof. William M. Polk of Cornell University, a young man of unusual promise, who died recently of pneumonia. He was graduated from Yale in 1896, and from Cornell University Medical College, with honor, in 1899, being a member of the first class graduated from that school. After serving for two years as interne in Bellevue Hospital he went to Vienna to perfect himself in pathology and medical diagnosis, and on his return from abroad was appointed Instructor in Medicine and Physical Diagnosis in the Cornell Medical College and Assistant Visiting Physician to Bellevue Hospital. Although not yet twenty-nine years of age, at the time of his death he had completed an exhaustive original study of pneumonia, and was about to publish a paper on the blood changes in that disease, which promised to bring to the attention of the profession some very important and original ideas.

WORK OF FRESH AIR DEPARTMENT. — The fresh air department of the New York Society for Improving the Condition of the Poor has recently opened a seaside tent-camp for young children suffering from tuberculosis of the bones and glands. It is situated in the vicinity of "Sea Breeze," Coney Island, the summer settlement of the Society, and at present affords accommodations for fifty patients. It is estimated that there are in the tenement houses of New York from three thousand to four thousand children under fifteen affected with non-pulmonary forms of tuberculosis. Dr. E. Franklin Smith is one of the committee in charge of the camp, and among the physicians and surgeons on the advisory board are Drs. E. G. Janeway, H. M. Biggs, N. M. Shaffer and V. P. Gibney.

Miscellany.

INCIDENTS OF THE BURNING OF THE "GENERAL SLOCUM."

THE bright features connected with the appalling catastrophe on the steamboat "General Slocum" were the heroic efforts of the watermen, the police, the physicians and the nurses, who saved hundreds at the risk of their own lives, the prompt and efficient aid rendered by all the city departments in an unusual emergency, and the generous response of the public to the Mayor's call for financial assistance. North

Brother's Island, where the burning boat was run ashore, it will be remembered, is the location of the Health Department's Riverside Hospital for contagious diseases. On it there is also now a tuberculosis hospital. Dr. Darlington, the President of the Department, was very early on the spot, and afterwards gave a graphic description of the events on the island. "I shall never be able to forget the scene — the utter horror of it," he said. "The patients in the contagious wards, especially in the scarlet fever wards, went wild at the things they saw from their windows, and went about screaming and beating at the doors, until it took fifty nurses and physicians to quiet them. Along the beach the boats were carrying in the living and dying and towing in the dead. We wrapped the living in blankets and gave them milk and whiskey. We used a barrel and a half of spirits to good purpose in reviving the sufferers and keeping the rescuers from getting so chilled that they could not go on with their work. One hundred and fifty doctors and nurses worked over the injured and remained at their posts all night — women and men alike. They did the work of heroes, and did it well." Efficient aid was also given by a number of the convalescents and tuberculosis patients. At the morgue and the neighboring dock of the Charities Department at the foot of East 26th Street, where hundreds of dead bodies were laid out for identification, many grief stricken persons attempted to throw themselves into the river, and it required the constant vigilance of the police to prevent such suicides. Of the injured some two hundred and sixty were taken to various hospitals after the disaster.

Correspondence.

ANNUAL MEETING, AMERICAN MEDICAL ASSOCIATION, JUNE 13, 1904.

BOSTON, June 17, 1904.

MR. EDITOR: The Fifty-fifth Annual Meeting of the American Medical Association, held last week at Atlantic City, presented a striking contrast to the Fourteenth International Medical Congress held a year ago at Madrid. In handling a large number of strangers, the Americans have the advantage of knowing how. For the abundance of hotel and railroad accommodation the Association is not responsible except that it chose such a favorable place. In Madrid practically all of the visitors had taken a long railway journey and very few of them could understand the language of the country. The lodging was inadequately handled, while at Altantic City even those who decided at the last moment to come found plenty of room, and no increased charge. The reduction of railway rate was substantially the same in each case. The foreign method of issuing tickets is a time-consuming process. Here in this country the delegates have not all become familiar with the details of the "certificate plan." Some who did not leave their certificates with the railroad office when they first arrived found some delay in getting them signed by the secretary of the transportation committee. The registration office was adequate and efficient even during the rush hours of Tuesday morning. The directions as to the meeting places of the sections were clear and explicit. Unfortunately, one of these had to be changed during the session, but the delay and confusion were inconsiderable. In Madrid the National Government was interested in the Congress and did its part well. The opening session in the royal opera house was a brilliant spectacle. The reception to delegates in the royal palace and the garden party for delegates and ladies were faultless in management and thoroughly enjoyable. The closing session at the hall of the University was somewhat marred by the feeling that there had been mismanagement in regard to the details of the Congress. At Atlantic City the arrangements for the comfort and convenience of members was excellent, the meeting places of the sections were good and not too far apart. The hall selected for the general meetings and the Section on Practice of Medicine proved to have very poor acoustic qualities. The Presbyterian church was substituted and proved adequate though not ideal.

The members in the different sections felt that the business of the session was being well taken care of by the house of delegates which met in the High School building. The efficient organization of each section and the hard work of the secretaries resulted in a program which could be carried out on time, thus leaving room for animated, entertaining and instructive discussion. At Madrid the very slender organization of the Congress — it meets but once in three years — made it very difficult for members to know when certain papers would be read. This was especially true of the general sessions. At Atlantic City the general sessions were the best features on the program.

The success of the convention was chiefly due to the committees of arrangement, the officers of the sections, and the members who read papers. Each and all put in *hard work*. The Association is to meet in Portland, Ore., next year and possibly the year after in Boston. The message of encouragement and inspiration which it sends to all who read the transactions is *work hard*.

One of the most earnest and practical gatherings was the symposium on Venereal Diseases held by the Section on Hygiene and Sanitary Science. It is destined to have far-reaching importance. The committee propose to regard syphilis and gonorrhea from the point of view of the innocent and not from the standpoint of prostitution. Indifference is the only method yet applied to these diseases, and that has been found wanting. By concerted action the State and Provincial Boards of Health propose to ask all physicians to report annually the number of cases of these diseases treated; whether male, female, married, or single. They also propose to furnish every physician with circulars issued under the sanction of the American Medical Association, which he may give to his patients if he thinks best. It is also proposed to conduct a campaign of education in every way that seems advisable. The amount of legislation required is not very great or very radical. The discussion showed encouraging signs of an awakening of interest among the profession and the public in the means at hand to prevent the spread of these two diseases.

Very truly yours,
CALVIN G. PAGE, M.D.

SANITARIUM vs. SANATORIUM.

WASHINGTON, D. C., June 18, 1904.

MR. EDITOR: The recent note in your JOURNAL on "Sanatorium and Sanitarium" led me to some dictionaries. The many sanitariums probably took the name without special thought, and one in Massachusetts lately changed from sanitarium to sanatorium.

The Standard Dictionary, published by Funk & Wagnalls, New York, gives as the first definition of sanitarium, "a sanatorium: sometimes restricted to a place where the hygienic conditions are prophylactic or preservative of health, as distinguished from one where therapeutic agencies are employed." From the Latin "*sanatorius*," health-giving.

The Century Dictionary, which is one of the best, says, "Sanatorium, a place to which people go for the sake of health; also, a house, hotel, or medical institution in such a locality, designed to accommodate invalids." It gives only one comment under sanitarium, "an improper form for sanatorium."

Yours truly,
A. ERSKINE MILLER, M.D.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JUNE 11, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung disease.	Diphtheria and croup.	Cerebro-Spinal Meningitis.	Typhoid Fever.
New York . .	3,908,644	1,222	384	27.25	—	2.85	4.40	.41
Chicago . . .	2,021,086	420	98	25.00	12.38	1.42	.24	.24
Philadelphia	1,407,988	426	112	26.05	10.79	1.87	—	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	159	45	26.41	6.29	.63	—	1.88
Cleveland . .	444,331	—	—	—	—	—	—	—
Buffalo . . .	400,945	—	—	—	—	—	—	—
Pittsburg . .	362,403	117	—	28.20	5.12	3.42	—	8.55
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	87	30	19.36	12.32	1.76	1.76	—
Boston . . .	617,950	164	55	18.90	12.80	2.44	1.83	—
Worcester .	136,925	31	9	3.22	9.66	—	—	—
Fall River .	119,349	22	8	22.72	18.18	—	—	—
Lowell . . .	104,402	24	12	4.16	20.83	4.16	—	—
Cambridge .	100,998	12	4	8.33	—	—	—	—
Lynn	73,878	19	3	—	5.26	—	—	—
Lawrence . .	72,548	18	7	44.44	11.11	—	—	—
Springfield .	72,020	15	—	40.00	—	—	—	13.33
Somerville .	70,413	16	2	31.25	—	—	—	6.25
New Bedford	68,868	14	5	21.42	14.28	—	—	7.14
Holyoke . . .	50,538	13	3	15.40	23.10	—	—	—
Brockton . .	46,801	12	2	—	—	—	—	—
Newton . . .	39,210	6	1	16.67	—	—	—	—
Haverhill . .	39,061	8	2	25.00	—	—	—	—
Malden . . .	37,205	6	1	50.00	—	16.67	—	—
Salem	37,188	12	2	8.33	16.67	—	—	—
Chelsea . . .	36,499	5	1	—	20.00	—	—	—
Fitchburg . .	36,335	9	2	11.11	11.11	—	—	—
Taunton . . .	34,577	7	1	28.60	—	—	—	—
Everett . . .	30,209	6	2	—	—	—	—	—
North Adams	29,301	5	1	—	20.00	—	—	—
Quincy . . .	26,798	4	—	25.00	—	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	5	1	40.00	—	—	—	20.00
Brookline . .	25,576	3	—	—	33.33	—	—	—
Pittsfield . .	23,870	4	1	50.00	—	—	—	—
Medford . .	21,956	2	—	—	50.00	—	—	—
Chicopee . .	21,692	9	3	—	—	—	—	—
Northampton	20,314	5	—	—	—	—	—	—
Beverly . . .	15,807	2	1	50.00	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	2	0	—	—	—	—	—
Adams . . .	14,745	6	2	16.67	16.67	—	—	—
Attleboro . .	14,561	3	—	33.33	—	—	—	—
Hyde Park .	14,500	3	1	—	—	—	—	—
Newburyport	14,478	9	0	22.22	—	—	—	11.11
Woburn . . .	14,315	5	2	20.00	20.00	—	—	—
Melrose . . .	13,819	—	—	—	—	—	—	—
Westfield . .	13,809	1	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	1	33.33	—	—	—	—
Revere . . .	13,609	3	1	—	—	—	—	—
Framingham	13,974	14	1	7.14	7.14	—	—	—
Peabody . . .	13,406	—	—	—	—	—	—	—
Gardner . . .	12,324	4	3	50.00	—	25.00	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	1	0	—	—	—	—	—
Weymouth .	11,350	4	0	—	—	—	—	—
Plymouth . .	11,139	2	1	—	50.00	—	—	—

Deaths reported, 2,919; under five years of age, 800; principal infectious diseases (smallpox, measles, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 723; acute lung diseases 173, consumption 363, scarlet fever 25, whooping cough 12, cerebrospinal meningitis 60, smallpox 3, erysipelas 6, puerperal fever 9, measles 28, typhoid fever 41, diarrheal diseases 114, diphtheria and croup 62.

From whooping cough, New York 6, Chicago 3, Pittsburg 2, Beverly 1. From smallpox, Baltimore 2, New York 1. From cerebrospinal meningitis, New York 54, Chicago 1, Providence 1, Boston 3, Gardner 1. From typhoid fever, New York 5, Chicago 1, Baltimore 3, Philadelphia 16, Pittsburg 10, Springfield 2, New Bedford, Somerville, Waltham and Newburyport 1 each. From Erysipelas, New York 4, Philadelphia 1, Pittsburg 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending May 28, the death-rate was 15.4. Deaths reported 4,507; acute diseases of the respiratory organs (London) 80, whooping cough 163, diphtheria 41, measles 205, smallpox 4, scarlet fever 27.

The death-rate ranged from 3.9 in Kings Norton to 22.8 in Hanley; London 14.3, West Ham 13.7, Brighton 18.2, Southampton 10.7, Plymouth 20.1, Bristol 12.6, Leicester 14.2, Nottingham 18.9, Birkenhead 15.4, Liverpool 17.9, Bolton 19.0, Manchester 18.6, Salford 18.2, Bradford 19.9, Leeds 19.0, Hull 17.7, Sheffield 16.7, Cardiff 13.6, Rhondda 19.2, Wigan 18.3, Merthyr Tydfil 15.8, Northampton 11.4, Norwich 14.4.

METEOROLOGICAL RECORD.

For the week ending June 11, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 5	29.93	74	88	59	85	86	86	S	S W	12	12	O.	F.	T
M. . 6	29.98	62	72	52	88	94	91	N E	E	12	10	O.	O.	0
T. . 7	29.90	58	66	51	97	92	94	N	S E	7	2	R.	O.	.39
W. . 8	29.96	60	66	53	100	97	98	N E	E	5	8	G.	O.	.02
T. . 9	30.30	53	56	50	90	94	92	E	N E	15	12	O.	F.	0
F. . 10	30.26	54	60	48	74	72	73	E	S W	8	4	F.	F.	0
S. . 11	30.02	58	66	49	63	67	65	N E	E	12	2	C.	C.	0
Mean	30.05		68	52			86							.41

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mean for week.

ERRATUM.

The statement in the JOURNAL June 9, p. 630, that Dr. E. L. Trudeau was present as a delegate from the United States at the International Tuberculosis Congress in Copenhagen, May 27, was incorrect. Dr. Trudeau did not go to Copenhagen.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 18, 1904.

HART, G. G., acting assistant surgeon. Ordered to the "Reliance" for temporary duty, and on arrival of that vessel at Culebra, W. I., detached and ordered home to wait orders.

MINK, O. J., and F. E. PORTER, assistant surgeons. Appointed assistant surgeons with rank of lieutenant, junior grade, from June 7, 1904.

CHAPMAN, R. B., assistant surgeon. Detached from the naval hospital, Mare Island, Cal., June 27, and ordered to the Navy Yard, Washington, D.C.

BOOKS AND PAMPHLETS RECEIVED.

University of California Publications. Physiology. The Action of Cascara Sagrada. By John Bruce MacCallum. 1904.

University of California Publications. Physiology. The Possible Influence of the Amphoteric Reaction of Certain Colloids upon the Sign of their Electrical Charge in the Presence of Acid and Alkalis. By Jacques Loeb.

Concerning Dynamic Conditions which contribute toward the Determination of the Morphological Polarity of Organisms. By Jacques Loeb. 1904.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. January, 1904.

Modern Ophthalmology. A Practical Treatise on the Anatomy, Physiology and Diseases of the Eye. By James Moores Ball, M.D. Illustrated. Philadelphia: F. A. Davis Co. 1904.

Unconscious Therapeutics; or, the Personality of the Physician. By Alfred T. Schofield. Philadelphia: P. Blackiston's Son & Co. 1904.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, assisted by H. R. M. Landis, M.D. Vol. II, June, 1904. Philadelphia and New York: Lea Brothers & Co. 1904.

The Practical Medicine Series of Year Books, comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P. Head, M.D. Vol. VI. General Medicine. Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, M.D. Chicago: The Year Book Publishers. 1904.

Third Annual Report of the Metropolitan Water and Sewerage Board. January 1, 1904.

University of California Publications. Physiology. Artificial Parthenogenesis and Regular Segmentation in an Annelid (Ophelia). By G. Bullot. June 1, 1904.

Addresses.

ANOMALIES OF THYROID SECRETION.*

BY FREDERICK C. SHATTUCK, M.D., BOSTON,
Jackson Professor of Clinical Medicine, Harvard Medical School.

MR. PRESIDENT, MEMBERS OF THE MAINE MEDICAL ASSOCIATION:

I thank you for the honor you do me in inviting me to address you this evening. Perhaps I should apologize for venturing to bring before you a subject which is not new. But all that is new is not true, and my subject is, at all events, replete with interest, practical as well as more strictly scientific, with well laid foundations, though the superstructure is still far from complete. Indeed, it seems to me there is nothing even in modern surgery more striking, I could say more dramatic, than some of the results which flow from our gain in knowledge as to the function of that little gland which is saddled across the trachea just above the root of the neck.

And we shall see that the surgeon's knife has lent its aid in fashioning the links of the chain of evidence, enforcing the lesson of the unity of medicine and of the interdependence of the physician and surgeon, the special work of each being based upon the general principles of anatomy, physiology, pathology and chemistry.

I hope it will not be a waste of time to briefly sketch the evolution of our present knowledge of thyroid function. Of the four chief ductless glands in adult life the adrenals were the first with regard to which we gained a definite knowledge, thanks to Addison's classic work which showed that their destruction is followed by mortal disease characterized by more or less well defined symptoms; that these glands, small as they are, are in some way indispensable to health and eventually to life. The far larger and usually single spleen is still something of a puzzle to-day. Its total extirpation seems to be compatible with the maintenance of good health even in the absence of one or more supplementary spleens. In case of necessity the bone marrow and lymph glands appear to be able to do the work of the spleen. Here we have a sharp contrast between the spleen on the one hand and the twin adrenals and Siamese twin thyroids on the other. If they are destroyed the organism seems to be unable to supply their place. The still smaller and single pituitary body is the last to yield up its secrets, in part, at least.

Enlargement of the thyroid gland — goitre — must have been recognized since anatomy, begotten of dissection, was born. Save in its mildest degrees it cannot escape notice. Atrophy of the gland, on the other hand, is not often easy to recognize in life, save indirectly through its symptoms.

While isolated cases of goitre occur everywhere it has long been notorious that in certain localities, some of the shut-in Alpine Valleys, for instance, it is far more common, so common in some places that its absence in an individual may be regarded almost as a deformity. And it was, furthermore, noted that where goitre is endemic a peculiar form of impairment, mental, physical or both, is rife, so peculiar as to deserve a special name — cretinism. Among the fanciful explanations for this endemic disease the drinking of water from melted snow was a favorite, winning credence alike from the profession and the laity. I well remember in 1869 my guide in the Tyrol trying to dissuade me from allaying my thirst from an icy mountain rill, and assigning the danger of goitre as a reason for his advice.

The connection between thyroid disease and cretinism was masked by the fact that there is no obvious relation between the degree of goitre and that of mental and physical health,— that one person with great thyroid enlargement might be otherwise well, while another with far smaller or no tumor might be a repulsive idiot, small in stature and asymmetrical in development. This, with dense ignorance as to the function or necessity of the thyroid gland, was the situation in 1873 when that great physician and acute observer, Sir W. Gull, published his paper entitled, "On a peculiar cretinoid state supervening in women in adult life." Note, please, here, the truly scientific mind. He described what he saw, fully, clearly. He indulged neither in hypothesis nor theory. Note also the word "cretinoid." His keen eye detected the broad resemblance of the acquired to the congenital state. Next Ord in 1877 first follows the trail to the autopsy table and introduces the term "myxœdema," on account of the remarkable mucin reaction presented by the puffy but non-pitting integument, so different from the ordinary œdema. He also discusses the relation between myxœdema and cretinism, sporadic and endemic, and notes thyroid changes in his fatal case. It is interesting that Curling and Fagge had already called attention to atrophy and absence of the thyroid in sporadic cretinism. Mark again Ord's purely descriptive term, expressive in one word of a definite group of symptoms from the true pathology of which we seemed to be still nearly as far away as ever. Next the great Frenchman, Charcot, in 1879 describes the condition and applies another purely descriptive name, "cachexie pachydermique," the thick-skinned cachexia. In 1880 Savage first recognizes the disease in the male.

Now surgery steps on the scene which shifts to Switzerland, a home of goitre. Safety, the daughter of cleanliness, had encouraged operative relief for the disfigurement and tracheal pressure of goitre. The unknown function of the gland and analogy seemed to warrant total extirpation, which also seemed better and easier surgery when the whole gland was involved. But it was found that in some of the cases thus operated on a train of symptoms began to develop and progressed producing a state to which the name "cachexia strumipriva" was applied. The publications by Kocher and Reverdin on this subject

* Oration before the Maine Medical Society at the Annual Meeting in Portland, June 2, 1904.

were almost simultaneous, and their experience led them to the resolution in future to leave a portion of the gland behind. The term "operative myxœdema" marks the recognition of the similarity of the symptoms following total removal of the thyroid and the myxœdema of Gull and Ord. It was not long before it was seen that they were identical. Thus was firmly established the pathology of myxœdema, and much light was thrown on the physiology of the thyroid gland. The report of the London Clinical Society, published in 1888, ably collected and analyzed the evidence, which was so complete that the experiments of Schiff and Horsley on dogs and monkeys, though affording highly interesting results, did not materially affect the main question.

We had now learned to recognize the condition resulting from the total absence or loss of thyroid function, congenital and acquired. We had also learned that the presence and activity of a portion of the gland, or of an accessory thyroid, prevents the development of the group of symptoms to the acquired form of which Ord's term "myxœdema" still remains attached. These symptoms when fully developed are so striking and distinctive as to permit probable diagnosis at a glance. Some years ago I was called to the suburbs to see a man with general peritonitis. While the family physician was going over the history the patient's wife came into the room. One look at her was enough to reach the diagnosis of myxœdema. Subsequent treatment cured a condition which had lasted for years, so near as to be practically in the "Hub of the Universe."

The story of myxœdema, like that of polyneuritis, is an illustration of how much easier it is to see what is pointed out to us than to see for ourselves — how rare is original thought. How many really obvious things now pass under our very eyes without penetrating beyond the retina!

The evolution of the therapy of myxœdema is scarcely less remarkable than that of its pathology. Transplantation of the gland was first practiced, and was followed by marked improvement which was, however, only temporary. The gland did not seem to live and persist amid strange surroundings; but the results showed that we were on the right track. In the first edition of Osler's Practice, 1892, we find "Unfortunately no satisfactory treatment is known. The patients suffer in cold and improve greatly in warm weather. They should, therefore, be kept at an even temperature and should, if possible, move to a warm climate during the winter months."

But while these words were going through the press the light was breaking. It was found that hypodermic, and even rectal, injection of the raw gland prepared and used under strict aseptic precautions was efficacious. Then feeding with the raw, the cooked gland, and, finally with liquid or dried extract of the gland was successively tried with the surprising result that the important active principle is, for practical purposes, unchanged either by the preparation without the body or by the digestive process within it. Thus was the battle won, and thus did we come into a position to readily recognize and cure the condition first described by Gull less than twenty years before, and which had been uncertain and obscure in pathology and hopeless in outlook.[1]

A year ago a middle-aged man came under my care at the Massachusetts General Hospital. His friends, weary of the burden of his support and care, were ready to send him to the poorhouse. He was practically an idiot, sluggish to the last degree both in body and mind. After several months' treatment he returned home, and his own mother failed to recognize as her son the man, active mentally and physically, whose bald head with here and there a long wisp of dry hair had become thickly covered with normal growth. I have seen him recently; he is perfectly well, self-supporting with steady work. I know nothing in medicine comparable to the change in a myxœdematous patient after treatment unless it be the effect of potassium iodide in certain cases of syphilis.

If the thyroid gland be congenitally absent or if it cease to act in early life, growth is seriously arrested and distorted. A child of eight, weighing twenty-three pounds, a typical cretin, entered my service this winter. Under treatment she has lost nearly six pounds in weight, but gained greatly in strength, intelligence and appearance. If the gland be destroyed by disease or extirpated in adult life certain nutritional and mental changes occur. Cretinism and myxœdema are essentially identical in nature, the only real difference lying in the period of life at which the cause begins to act. The relation of cause and effect is as certain as anything in medicine. But as to how the effect is produced we are still far from clear. The prevalent view is that the ductless glands secrete something which finds its way directly into the blood — internal secretion, so-called. However interesting it might be to touch upon the modern views as to the existence of an internal secretion also in glands furnished with ducts, nay even of the parenchymatous organs, such discussion would be aside from our present issue and would lead too far. I will mention only the relation of Langerhans' islands in the pancreas to, at least some cases of, diabetes. This seems established. The effects, then, of arrested thyroid secretion being so distinctive, what happens if, for any cause, secretion be excessive? For it seems highly probable that myxœdema is due to purely quantitative change. The failure of symptoms to develop if a portion of the gland remains active is one point favoring this view. With regard to this most interesting and important point — excess — we have not as yet succeeded in getting on as firm ground, though it seems as if more positive knowledge might not be far off.

There is one disease the symptoms of which are almost diametrically opposed to those of myxœdema and in many cases of which the thy-

[1] It is interesting to note that Englishmen took far the largest part in the solution of the mystery of myxœdema.

roid gland is manifestly enlarged. This enlargement, moreover, is capable of undgeroing such variations in size as to suggest that the enlargement must be in part, at least, due to actively increased blood supply, which, presumably, entails increased glandular activity. In passing, the thyroid enlargement — vascular — which occurs sometimes in connection with pregnancy and menstruation is worthy of note. I allude, of course, to that remarkable group of symptoms so obscure in origin until lately, to which the name "Graves' disease" is attached, though priority of description belongs to Parry. Parry's observations were lost sight of and, for convenience, I shall use the common English name. Contrast the facies of terror, the nervousness and tremor, the intolerance of heat, the moist skin and vasomotor instability, the emaciation of Graves' disease with the cow-like placidity, bodily and mental sluggishness, intolerance of cold, dryness of the skin and its appendages, scanty urine, and the swollen and puffy integument of myxœdema. The suggestion that symptoms so absolutely opposed must depend, at least in a measure, on opposed pathological conditions cannot but demand most serious consideration. I think it was Möbius who first, in 1890, maintained this view in print. How is proof to be secured? We *know* that myxœdema is cured by introducing into the system the thyroid of some animals, the sheep, for instance. Does such introduction produce Graves' disease in a healthy person? What is the effect on patients already the subjects of Graves' disease? For obvious reasons full experimental evidence on man with regard to the first of these questions cannot be secured. But that thyroid over-dosage does quicken the pulse, raise the temperature and cause loss of weight admits of no doubt. I have a lively recollection of a patient whom I nearly killed with thyroid extract some ten years ago. He was the first case I recognized as having partial myxœdema, a gentleman who had been treated for all sorts of things, "a dropsical tendency" among others. Though I felt sure of the diagnosis I asked Dr. J. J. Putnam to see and examine him without me and without knowing my opinion. He concurred. Putnam had just received the first sample of Parke Davis' dried extract which had reached Boston, and kindly placed it at my disposal. The patient took 15 gr. three times daily, and it was not many days before the pulse shot up from 70 to 140, the temperature from sub-normal to 103, and anginose pain was severe enough to require several half-grain hypodermics of morphia within a few hours. He has taken the extract ever since, occasionally intermitting its use for a short time; but never in 15-gr. doses. He is now seventy-nine. I have never poisoned anyone else to that degree. The cretin I alluded to before entered the hospital with a pulse of 70 and normal temperature. The pulse now runs 130–140, temperature 100–103, under one grain three times a day. By increasing or diminishing the dose, the pulse and temperature can be raised or lowered. A rapid pulse is the most constant single symptom of Graves' disease. Exophthalmos and goitre may be absent in severe and even, as Thomson has seen, fatal cases. The name "exophthalmic goitre" is, therefore, wholly inapplicable to the disease and should be dropped as it tends to perpetuate the error from which Kocher himself has not been able to free himself. As a surgeon he naturally sees only the cases with goitre and hence denies that Graves' disease can exist without goitre. This error reminds one of that of the great Hebra who maintained the identity of varicella and variola, I have always thought for the reason that he had seen but little varicella.

Thyroid extract, then, is capable of producing the most constant, if not essential, symptom — rapid heart action — and some of the minor symptoms of Graves' disease. Improvement in all symptoms often follows partial extirpation of the thyroid, as also it may follow ligation of arteries resulting in diminished blood supply, and hence, presumably, diminished glandular activity. These facts, taken together, constitute strong evidence as to an intimate relationship between the thyroid gland and Graves' disease.

It has been thought that the parathyroid glands may play something the same rôle in Graves' disease that the thyroid does in myxœdema, and keen investigators are studying the question. Extirpation of the parathyroids in animals is followed by acute and convulsive disorders — tetany, while extirpation of the thyroid alone is followed by chronic and nutritional disorders. The parathyroids were formerly supposed to be accessory thyroids and inconstant. They were discovered by Sandström in 1880, rediscovered by Gley in 1892. Positive clinical and pathological evidence with regard to the parathyroids in man is still meager, partly from the short time the work has been going on, partly from the inherent difficulties of the problem. Analogy would suggest that their action is essentially the same in the higher vertebrates. The known sequence of their removal in animals has suggested the possibility that the alarming frequency of pulse and respiration, too often fatal, which sometimes occurs rapidly after thyroidectomy for Graves' disease, may be due to removal of the parathyroids rather than to flooding of the system with thyroid secretion, poured out from the cut surface of the gland and rapidly absorbed from the extensive wound. If the parathyroid theory be true it would seem as if such cases should be invariably fatal, as they are not. The facts do not, as yet, warrant any final conclusion; but for the present, at least, the injunction by Jeandelize to make a point of sparing the parathyroids in thyroidectomy should be heeded by surgeons. MacCallum has fed the parathyroids to a patient with Graves' disease without appreciable effect. Whether the action of the thyroid and parathyroids is antagonistic, complemental, or unrelated we do not to-day know. But what evidence we have does not

seem to indicate a vital causal connection between the parathyroids and Graves' disease.

Let us then assume, for the sake of argument at least, that myxœdema and Graves' disease are both dependent on states of the thyroid gland, and that the former represents loss of function of the gland. Does it then follow that the latter — Graves' disease — represents excessive function or purely quantitive changes in secretion? We do not know. Qualitative change may or may not be operative. That glandular activity of any kind may be increased or diminished in greater or less degree, or even arrested, for considerable periods and simply from faulty innervation, we do know. The stomach tube which enables us to extract the gastric contents at any period of digestion has demonstrated to us the existence of both hypo- and hyperchlorhydria as phases of nervous dyspepsia, so-called. We have no such direct means of determining the amount and character of thyroid secretion, which, moreover, is probably far more subtle in its nature than that of the peptic glands. However plausible the theory that Graves' disease is the result of purely excessive thyroid secretion may be, proof is still lacking.

I have just received from my friend, Dr. W. H. Thomson, of New York, his most interesting monograph on Graves' disease, fresh from the press. He, as you know, doubts the causal relation of the thyroid gland to Graves' disease, and believes the main factor to be toxin absorption from the intestines. After study of his therapeutic results, which are better than any with which I am acquainted, it is hard to escape the conclusion that diet and mercurials are of great service, while we yet provisionally hold the view that morbid thyroid activity is the central and essential factor in Graves' disease. Thomson tells me that he prefers to get a bad case as his results in such are more striking.

It is certainly conceivable that intestinal toxins should have a peculiarly bad effect on the subjects of thyroidism. We are ignorant as to whether the thyroid puts something into the blood useful for constructive nutrition, though the fact that the earlier in life the gland ceases to act the greater the effect on growth would suggest this to be the case; whether its action is destructive toward toxins; or whether it acts in both ways at once. If the gland has a double action it is possible that either variations in the demand for the one or the other action, or variation in the supply to meet one or the other demand may occur in the complex conditions which constitute life. A double supply, a double demand; the extreme subtlety of the chemistry of the living body; and our fragmentary knowledge of the subject afford ample scope for speculation and hypothesis, which are in place in matters scientific, provided always that they be recognized for what they are.

Thus far I have had in mind fully developed cases of myxœdema and Graves' disease. They are easily recognized. But are we as a profession sufficiently alive to the fact that all grades of each exist? Do we recognize the "*formes frustes*," as the French call them? I think not as often as we should. Personally, I happen to have been interested in the subject, and during the past year I have seen at least four cases of Graves' disease in males and two in females, the nature of whose trouble had in some certainly, in others apparently, not been suspected by their previous attendants. These were, of course, cases entirely without or with only slight exophthalmos and goitre. Only yesterday a gentleman called with a pulse of 150, tremor, sweating. I have seen him at intervals of about six weeks for as many months and feel sure of the diagnosis. His return of rapid pulse of yesterday I think due to recent unavoidable business strain, for on the whole he is decidedly better than he was six months ago. Although the heart's action was violent as well as rapid, shaking nearly the whole chest, he was entirely unconscious of it, though he was conscious of his "nervousness."[2] If we keep clearly in mind the characteristic symptoms, minor as well as major, of myxœdema and Graves' disease, I feel sure we shall now and then encounter undeveloped cases of one or the other condition. Among the important symptoms of myxœdema a small renal secretion with a still smaller, proportionally, output of urea is not the least. Myxœdema, alike partially and fully developed, I think more rare than Graves' disease.[3]

In case there be doubt as to the diagnosis of these "*formes frustes*," tentative treatment, especially perhaps of the myxœdematous class, may confirm or negative our suspicions. Therapeutic truth lies at the bottom of a very deep well, deeper than the philanthropic drug and prepared-food manufacturers, distributing sample bottles, wish us to believe; and it is, of course, not safe to conclude that any gain following the use of thyroid extract is the direct result of its use and a proof of hypothyroidism, any more than that symptoms relieved after quinine were malarial; or that those disappearing after potassium iodide were syphilitic. At the same time a marked gain in physical and mental alertness with the return of a normal relation to cold are significant. Hertoghe seems to me to attach far more final value to the therapeutic test than it deserves.

The whole treatment of myxœdema is practically comprised in the administration of thyroid extract. It is safer to begin with moderate doses, say three to five grains twice a day for an adult, increasing the dose in size, frequency, or both, as the tolerance of the patient is developed. The presence of notable arteriosclerosis or of degenerative myocardial disease should make us

[2] Very recently I have seen a lady who was seen by my friend and assistant, Dr. W. H. Smith, some years ago. He tells me that at that time her somewhat rapid pulse and nervous manner led him to look for goitre which, as also exophthalmos, was quite absent. Under recent psychical perturbation the nervousness and tachycardia have greatly increased and goitre is manifest.

[3] We still need light on the interesting question as to how often thyroid atrophy, greater or less in degrees, results from thyroiditis complicating or following acute infectious disease.

very cautious as to dosage, at first at least.[4] It is easier to add to a deficient or to supply a lost thyroid secretion than to directly restrain or modify one which is excessive or otherwise morbid. The treatment of Graves' disease has long been unsatisfactory at the best. Real recovery is rare, though much may be done in alleviation if a quiet life without much nervous strain can be secured. A cool summer resort is very important. The improvement reported in some cases from mountain resorts and attributed thereto I believe should probably be credited to the temperature rather than to the altitude. Sexual excitement should be infrequent. A shrewd Canadian doctor once remarked to me that he had noticed aggravation of the symptoms of Graves' disease in the wives of commercial travellers coincident with the homecoming from trips.

The diet should be comprised mainly of fats, starches and sugars, with great moderation in or abstention from highly nitrogenous food; due regard being had, of course, to digestive peculiarities, temporary or fixed, of the particular patient. Oatmeal is probably the least desirable of the cereals from its excitant qualities. The bowels are apt to be either constipated or relaxed. Diarrhea, if genuine, may be regarded as an internal sweating and may be treated by some form of bismuth. Personally, I use Squibb's sub-nitrate in teaspoonful doses, less constipating than the smaller doses, perhaps, on account of its crystalline and hence scratchy nature. If there be constipation or any evidence of faulty intestinal chemistry I shall be tempted in future, acting on Thomson's suggestion, to give calomel regularly once or twice a week. And yet I have seen two cases recently, one with fifteen or twenty loose movements a day, the other with constipation, promptly acquire normal defecation under the neutral bromide of quinine alone.

Digitalis, far too frequently ordered under all sorts of conditions simply because the pulse is rapid, should not be used unless there be indication of insufficiency of the heart muscle. Strychnia is to be avoided. Three of the cases of Graves' disease seen lately had been taking digitalis and strychnia for longer or shorter periods without benefit.

Nearly four years ago my friend, Dr. F. Forchheimer of Cincinnati, told me of his results from neutral bromide of quinine. I have used it since and have thought it more helpful than any other drug I have used before. The toleration of quinine in Graves' disease is remarkable, and is seemingly proportional to the severity of the symptoms. I give it in five-grain pills three or four times a day. Two patients, cases of moderate severity, have now taken twenty grains daily almost constantly for more than three years without the least cinchonism, and with decided amelioration of all the symptoms, tachycardia and nervousness especially. A gentleman with acute Graves' disease, exophthalmos and goitre absent, was amazed that he could take twenty grains a day without discomfort, as he had always been highly susceptible to the action of quinine. Another similar case, a lady who has just come under my observation, gives the same testimony. At my suggestion the treatment has been largely used in the Out-Patient Department of the Massachusetts General Hospital with, as is reported to me, very satisfactory palliative results. The remarkable freedom from cinchonism and the small amount of bromide in twenty grains of the salt make it highly improbable that the latter is the active agent though, doubtless, as diminishing reflex excitability, it helps somewhat.

With thyroidectomy I have little experience, less, I am inclined to believe, than I should have considering my opportunities. The alarming symptoms and rapidly fatal termination after some cases of operation deter one from advising the knife in moderate cases, and the severe ones are bad subjects for serious surgery. On the other hand, a severe and chronic case perhaps justifies almost any risk. I have seen a few cases which have been greatly improved after operation, and Osler tells me within a day or two that they are having good results in bad cases at the Johns Hopkins operating under cocaine. A Massachusetts General Hospital case operated on by Mikulicz a year ago with distinct benefit has, I am told, since relapsed. I now regret not having advised operation in a very severe case in a young Jewess I saw some six months ago. All the symptoms were extreme. The prominence of the eye-balls was so great that corneal ulceration of a week's standing when I saw her had already destroyed her sight. It is the only case that I have seen of this disaster. Under such circumstances death is a true friend; but one shrinks from being the executioner.

With Rodagen, prepared from the milk of thyroidectomized goats or the serum, I have no experience.

To sum up: Graves' disease for the present is to be treated by rest, diet, climate, attention to the bowels and neutral bromide of quinine. If these measures are not followed by distinct improvement operation is to be seriously considered in severe cases, especially in patients whose circumstances in life are unfavorable for the general management of their disease.

In conclusion it only remains for me to thank you for the patience with which you have listened to me. If I have succeeded in imparting to my presentation a fraction of the interest which I feel in the subject, and, above all, which it merits, I shall be satisfied.

The fascination of the constant advance in knowledge tempts one, even in moments of weariness, to share the wish of Professor Hagen, the celebrated entomologist: "I wish I could be my own great-grandson."

[4] Larger doses are required, or may be used, to cause the disappearance of symptoms than to prevent their recurrence. The thyroid extract must, of course, be taken for the rest of life. A lady whom I saw in consultation eleven years ago came to see me within twenty-four hours about a friend. Under two grains, once, daily, she considers herself absolutely well, but experience has convinced her that this amount is indispensable.

THE SIGNIFICANCE OF THE TUBERCULOSIS CRUSADE, AND ITS FUTURE.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

ORGANIZED effort for the purpose of fighting pulmonary tuberculosis is now being made in nearly every civilized country of importance in the world. It is called the "Crusade," the "Warfare," the "Struggle" against consumption. Governments and rulers, sanitarians and physicians, philanthropists and "the people" of all classes are taking part in this movement. It is singularly impressive to observe this great and widespread wave of combined effort against a single foe; and it would be difficult to find a parallel to it, comparable either in extent or activity, in any similar movement of the past. A brief enumeration of some of the principal anti-tuberculosis associations and special forms of activity in different countries may aid us in more vividly realizing the extent and magnitude of this crusade.

In Great Britain there is the "National Association for the Prevention of Consumption and other Forms of Tuberculosis," under the patronage of the king and the presidency of the Prince of Wales. Branches of this association exist all over England, and it has its own publication. At its instance there was held in London in 1901 the International Congress of Tuberculosis, attended by delegates from various parts of the world. As one result of this congress Sir Ernest Cassel placed at the disposal of the king $1,000,000 for the establishment of the King's Sanitorium now in process of erection.

In Germany anti-tuberculosis societies and associations for the erection of sanatoria exist in most of the cities, and about ninety sanatoria for the poor and working people, with accommodations for many thousands of consumptives, have already been erected. There is a German Central Committee for establishing sanatoria under the patronage of the empress, and an International Bureau for the Prevention of Tuberculosis has been organized in Berlin, with its special organ. In 1899 a tuberculosis congress of an international character was held in Berlin under the patronage of the empress. The German Workman's Insurance, which insures against invalidity, largely employs the sanatoria, either of its own construction or others, for its consumptives, on purely economic grounds, finding it more economical to cure or so improve such patients that they may resume their occupation rather than pay sick benefits for a longer period of time while they are slowly dying of the disease.

In France, both the government and the people are working together in various directions. In 1899 the government appointed a large commission to determine the preventive means to be adopted throughout the republic. There are seventy-eight anti-tuberculosis societies in the different cities, united in a national federation under the patronage of the president. The anti-tuberculosis dispensary was first inaugurated in this country, Dr. Calmette founding the first one at Lille. Several congresses for the study of tuberculosis have been held in Paris, and an international one is to occur there in 1905. In December last the *Figaro*, a leading Parisian journal, dedicated an entire issue to the fight against consumption.

In Denmark there is a national association founded two and a half years ago at Copenhagen, and through voluntary contributions from members of this society three sanatoria have been erected. National leagues likewise exist in Italy, Austria, Belgium, Spain and Portugal. In Russia many such leagues have been formed in various portions of the vast empire: at Moscow, St. Petersburg, Odessa, Sebastopol, Tiflis, etc. In Norway the government enacted in 1901 a very comprehensive law regarding the prevention and control of tuberculosis. In Sweden, on the occasion of the twenty-fifth anniversary of the King's reign, the sum of $644,000 was raised by a national subscription and presented to him; this amount, together with $238,000 voted by the Reichstag, was applied to the erection and maintenance of three sanatoria in different parts of the kingdom. The educational propaganda, by means of popular essays and the press, has been very active in this country. The official almanac, which enters every household, has for the past two years contained a brief account of tuberculosis and practical rules for the government of the consumptive and his household.

In Switzerland almost the entire population, one can say, is taking part in the struggle. In most of the important cities various organizations exist for the purpose of aiding the tuberculous poor and disseminating anti-tuberculosis literature. More than a dozen popular sanatoria have already been established in this little country, and twenty paying ones. There are also several sanatoria for tuberculous children. In Holland there is a national association for the creation of sanatoria for the poor, with subcommittees in the principal cities. The queen-mother Emma has taken an active interest in this movement, and has made substantial contributions. In Turkey, Hungary, Bulgaria and Roumania, both the government and various societies are at work with the same general objects in view as in other countries. In South America leagues exist in Brazil, Argentina, Chili, Uruguay, Paraguay, Bolivia, Equador and Cuba. A general Latin-American congress met at Santiago in 1901 and formed a permanent international commission to direct the crusade in these countries.

In Canada, there is the Canadian Association for the "Prevention of Consumption and Other Forms of Tuberculosis," whose honorary president is the Earl of Minto, the governor-general. Ontario and Montreal also have their leagues. In the provinces of Ontario and Quebec sanatoria have been established. In Mexico, Central

[1] Read before the American Social Science Association, Boston, May, 13, 1904.

America, Australia and New Zealand similar anti-tuberculosis agitation is in progress; and in Japan the imperial government has created a large hospital for the study and treatment of the disease. In the United States there are various state and local associations. The first one of the kind was the Pennsylvania Society for the Prevention of Tuberculosis, founded in 1892. Quite recently Mr. Henry Phipps of New York donated $1,000,000 for the establishment in Philadelphia of an institute for the study, prevention and treatment of tuberculosis.

This great crusade is of comparatively recent origin, dating back hardly more than a decade, and its incentive is the result of a *discovery* and a *fact*. The discovery is the finding or isolating of the tubercle bacillus and the proof that this micro-organism is invariably the cause of the disease, or, in other words, that pulmonary tuberculosis is communicable or infectious. The fact is, the enormous prevalence of the disease, and, further, that its greatest mortality is at the best period of a man's life, between fifteen and forty-five years of age; of all who die during this period fully one third die of pulmonary tuberculosis. Possessing this knowledge of the cause of the disease and the method of its communicability, it is at once apparent that it is preventable, if we can find a sure and ready way of controlling the cause, *i. e.*, the infecting germ. Happily, this is easy, for it is through the sputum alone of the consumptive that the contagion is conveyed. The breath, the perspiration, the other discharges from the body, do not contain the specific germ, only the sputum; and this is dangerous only when it becomes dry and releases into the air the infecting micro-organism. The conveyance of the disease by animals suffering from it is still under discussion, the weight of evidence so far being in its favor. If it is a fact, it counts for relatively little in comparison with the sputum cause of infection. Few, if any, phthisio-therapeutists would, I think, agree with Von Bering that everybody has latent or active tuberculosis caused by the ingestion of milk during infancy.

The tubercle bacillus is a vegetable parasite, a seed, and, like other seeds, requires a favorable soil for its germination and growth. Furthermore, it resembles other seeds in the characteristic of exhausting or changing the character of the soil in producing the crop. Tuberculosis, by its growth, not only feeds upon the normal lung tissue and renders it incapable of performing its proper respiratory function, but so changes its structure that it becomes a ready prey to other destructive micro-organisms.

It is at once evident, then, that not all individuals exposed, even for a prolonged period, to the tubercle bacilli, contract the disease, provided their tissues are sufficiently resistant; and in this fact lies the whole theory of the present method of the treatment of the disease,— to convert a previously receptive organism into a resistant one.

It was the stony soil which afforded no depth of earth to the sower's seed, and "because they had no root they withered away." So the tubercle bacillus will not grow in a healthy organism. But the seed falling into good ground produced an ample crop, thirty, sixty, an hundredfold. So it is the conjunction of the bacillus and the favorable soil whose fruition is pulmonary tuberculosis.

The favorable soil is the human organism depressed below its normal standard of health by many and various influences and conditions, either chronically or temporarily. Here comes in the influence of heredity as a factor in producing this favorable soil. Whereas consumption is not inherited, for a contagious disease is caught not transmitted, yet experience indicates that a "tendency" to it, a special sensitiveness to the tubercle bacillus, appears to be inherited in a certain proportion of cases, not, by any means, in all.

The causes working to prepare this favorable soil are all those which we class under the head of unhygienic life and environment, or, in other words, they are the evil resultants of civilization. It is hardly necessary to enumerate them. Unsanitary dwellings and workshops, alcohol, unwholesome occupations, excessive labor, insufficient and improper food, and, more potent than all the rest, vitiated air. "He who has been the free child of nature," says Mr. Edward Carpenter,[2] "denies his sonship; he disowns the very breasts that suckled him." He deliberately turns his back upon the light of the sun, and hides himself away in boxes with breathing holes (which he calls houses), living ever more and more in darkness and asphyxia, and only coming forth, perhaps once a day, to blink at the bright god, or to run back again at the first breath of the free wind, for fear of catching cold."

Tuberculosis is an ubiquitous disease, and no region, whatever its climate and latitude may be, is exempt from it. The countries of the north and the tropics are alike swept by its ravages. Wherever human beings congregate, as in thickly settled portions of great cities, or wherever they shut themselves up in a vitiated atmosphere, like the Scandinavian farmers of Minnesota, or the peasants of Brittany, there it is most prevalent.

The yearly holocaust is appalling, but we have become so inured to it that it no longer startles us like some sudden catastrophe which destroys a few hundred lives. The annual sacrifice to it in France, for instance, is one hundred and fifty thousand lives, equal to the number of inhabitants of the city of Rouen. In this country it claims an equal number of victims, and so on in much the same proportion throughout the civilized world.

Is it any wonder that at last men are awakened to the realization of the destruction caused by this grim monster? Now that we know its cause through the transcendant discovery of Koch, and are able to control it, the enemy is no longer veiled in mist, but stands clearly revealed before

[2] Civilization, Its Cause and Cure, by Edward Carpenter.

us. It is only a matter of the selection of weapons, the mobilization of forces, and the persistence of the warfare to defeat the enemy, to exterminate this "great white plague."

It will be instructive now to consider some of the weapons and the different lines of attack employed in this warfare. There are five main lines along which the advance is being made: the Educational, Social, Isolation, Governmental and Medical.

Under Educational is comprehended the various methods of instructing the people in the simple facts regarding tuberculosis, its prevalence, cause, communicability, prevention, curability, conditions producing the favorable soil symptoms suggestive of its presence. This is accomplished by means of popular lectures, pamphlets, illustrations, placards and the like. Existing organizations of all kinds are asked to furnish audiences, or they themselves ask for lectures and information upon the subject. The schools, labor unions, lodges, educational centers, clubs, churches, neighborhood settlements, employees in great department stores, — are all available for audiences. Physicians, sanitarians, laymen who have had exceptional opportunities to become conversant with the subject, like Professor Fisher of Yale College, are available for lecturers. Leaflets, pamphlets, or more elaborate productions are furnished gratuitously by boards of health, dispensaries, anti-tuberculosis associations, or philanthropic individuals or societies. Tuberculosis exhibitions for conveying knowledge upon the subject in a popular form have of late been instituted. Such an exhibition was recently held in Baltimore lasting a week. Here were sections devoted to statistics: tenement houses, sweat shops and factories, state and municipal prophylaxis, hospitals and sanatoria, pathological anatomy and bacteriology. Small groups from all classes of society — students, nurses, teachers, working women's clubs, charitable societies and associations were conducted through the exposition and the various exhibits explained. Daily popular lectures were also given.

Similar exhibitions have been held in Moscow and St. Petersburg, and one is to take place in St. Louis during the Fair. In June of last year the International Tuberculosis Museum was opened in Berlin, "intended," as Dr. Kayserling says, " to be a popular object lesson, and to represent one of the means for enlightening the people as to the nature of tuberculosis." There were divisions upon the history, prevalence, cause, prevention and treatment of the disease, the whole subject being exhaustively portrayed in this way.

Another educational means is the use of the press, by popular articles on consumption in the daily and weekly papers and monthly magazines, such as the admirable article by Professor Fisher in the *Outlook*, or those of Dr. Knopf in some of the New York daily papers. Reports of lectures upon tuberculosis, the transactions of anti-tuberculosis associations, and other articles upon the subject in special publications like *Charities*, the *Club Worker*, nurses' magazines and the like — all have an educational value.

Under Social are included all efforts towards the general betterment of the masses, the workingman, the tenement-house dweller, the factory operative, child life. Indeed, the social condition of the individual has such a direct influence for or against one's receptivity to tuberculosis, that it has been called a " social disease." The question of housing, overcrowding, intemperance, the feeding of infants and adults, wages and labor, — all have a more or less direct bearing upon the prevalence of tuberculosis. The decrease of the disease prior to the active warfare against it now in progress is undoubtedly largely due, as Hoffman says, to the improvement in the mode of life of the masses. By an amelioration of the conditions of their life they become more resistant to the disease, and, as the great Genoese investigator, Maragliano, has recently said,[3] "the victims of tuberculosis will diminish in number, in proportion as the human organism is in condition to resist the disease."

As the modern surgeon now realizes that absolute cleanliness is really the cause of his marvellous results after operation, and that all his antiseptic precautions are only a means to this end, so in the ultimate analysis, the social problem is the struggle towards cleanliness. Clean bodies, clean houses, clean workshops, clean air, clean water and food, and clean minds are the essential factors involved in the solution. Indeed, we even use the word as indicative of character, and the phrase, a "clean man," conveys a very fair estimate of the moral status of the individual.

Again, under Social may be included the various methods of relief and control of the poor tuberculous individual by frequent visitations at his home by visitors or nurses under the direction of anti-tuberculosis associations or dispensaries. Through this instrumentality the victim of the disease and his family are instructed as to the proper disposal of the sputum, and the general care of the patient. Material aid in the form of food or other necessary articles is also furnished when needed.

Anti-tuberculosis dispensaries, previously referred to, perform a very important social rôle, as well as therapeutic. The consumptive who applies to such an institution is not only given medical care, but is kept under constant observation by the visitor or nurse. He is supplied with sputum receptacles, and generally guided in his plan of life when possible. Opportunity for change of occupation, if considered desirable, or of residence, or entrance into a sanatorium or hospital is provided for.

As it is the task of the engineers of an army to collect information regarding the enemy and to discover the topography of his country, so, under the social side of the tuberculosis problem are the various statistical investigations regarding the disease and its social relations, such as has been so admirably made by Miss Lillian

[3] Medical News, April 2, 1904.

Brandt, the statistician of the Committee on the Prevention of Tuberculosis, of the Charity Organization Society of New York. Such information enables one to prosecute the siege more intelligently, more effectively, and at more points of attack. "The struggle with tuberculosis," said M. Casmir Périer at the meeting of the Central International Tuberculosis Committee, in Paris, last May, quoted by Miss Brandt, "is intimately bound up with the solution of the most complex economic problems, and no plans will be complete which have not for their basis the material and moral improvement of the people. The struggle with tuberculosis demands the mobilization of all social forces, public and private, official and voluntary."

Isolation. — Under this head are included all measures of prevention dependent upon the segregation of the tuberculous individual when he becomes dangerous to those about him through the dissemination of the infecting sputum. This is accomplished through the instrumentality of boards of health, sanatoria, consumptive hospitals, and various "homes," or almshouses. In some countries, as Norway for instance, and in many cities, compulsory notification of the disease is required by law, and the same authority can be exercised in dealing with it as with any of the other contagious diseases; that is, the government or board of health can remove a consumptive from his abode when in their opinion he is a menace to those about him. This usually happens in the later stages of the disease. Consumptive hospitals for advanced cases of consumption are sadly needed in our American cities, and it is one line of attack and an exceedingly important one to arouse public opinion so that they will demand of the municipality the establishment of such institutions. It is no hardship to remove a poor consumptive to such a hospital, for he will receive far better care than is possible in his wretched abode.

Sanatoria also effect isolation, although their primary object is to cure. The workingman in the earlier stages of the disease and still able to pursue his avocation may be quite as dangerous to his fellow-workmen as the more advanced case. By his entrance into a sanatorium he obtains the benefits of treatment and has the chance of cure, while at the same time he is isolated. From obvious reasons isolation at one's home is hardly practicable.

Governmental. — Whatever anti-tuberculosis regulations originate from or are executed by the authority of the government, central, state or municipal, may be included under this division. Such are compulsory notification, already referred to; inspection and disinfection of infected abodes; free examination of sputum by state or city boards of health; ordinances against promiscuous spitting now in force in so many countries; sanatoria established and maintained by the government, as that of the United States Marine Hospital Service in New Mexico, and various similar state institutions, a most conspicuous example of which is the Massachusetts State Consumptive Hospital at Rutland. When the government is paternal, other measures for the prevention and control of the disease emanate from the central authority, and many of the national associations for the prevention of tuberculosis receive the endorsement and enjoy the prestige of the ruler of the country in which they are situated. As in Germany and England, — indeed in almost every country in Europe, — the rulers and government have shown themselves most intelligent and progressive in zealously supporting and aiding this great crusade. It is to be hoped that shortly a national association will arise in this country with the approval and co-operation of our government.

Finally, under Medical or curative are embraced all means instrumental in curing or arresting the disease, the chief of which is the modern sanatorium. As consumption is, for the most part, only curable in the early or incipient stage, only such cases are generally received into a sanatorium as appear susceptible of a cure or of such improvement as will enable them to again resume some occupation. The distinction between a sanatorium and a consumptive hospital is to be noted: the function of the former is to cure or improve, while that of the latter is to care for and isolate the hopeless cases.

The sanatorium treatment, also called the hygienic, dietetic, or open-air treatment, is based on the principle of increasing the resisting power of the consumptive to the tubercle bacillus. This, in brief, is accomplished by constant exposure to fresh air, abundant feeding, and mental and physical rest. Such treatment has been so preeminently successful that sanatoria are springing up all over the civilized world with amazing rapidity, as has been noted earlier in this paper. From present indications it will not be very long before every state in our own country will have one or more such establishments. It has been determined from experience that it does not matter very much what the climate is where the sanatorium is situated, provided fresh, pure air is obtainable. Both private and governmental initiative or a combination of both is active in founding such beneficent curative institutions.

Incidentally, as has been referred to above, the sanatorium exercises a preventive influence of no small degree by isolating its patients. Another very valuable incidental influence of the sanatorium is the educational propaganda carried on by its graduates, or cured patients; as they return to their homes they become apostles of fresh air and wholesome living to their less enlightened neighbors. This result of the sanatorium training has been strikingly exemplified in the state of Massachusetts.

In this connection I may again refer to the anti-tuberculosis dispensary as a curative instrument of no mean value. But comparatively few consumptives from the great mass of them can go to sanatoria, and for one reason or another they must remain at home, and these home con-

sumptives the dispensary looks after. Through its visitors or trained nurses it keeps in constant touch with them, enables them to obtain proper food and fresh air by various expedients, such as sleeping on a piazza, or an improvised platform, and by day in the open air in parks, or roof gardens. Thus many economic cures at least are effected, and often while the patient, perforce, continues at his occupation.

In the foregoing I have briefly and imperfectly, it is true, considered the various lines of attack and the weapons at present in use in this great warfare, and it remains to forecast the probable results of the struggle. What of the future? Theoretically, consumption is a perfectly preventable disease, and I believe it will be proved to be practically so. If, by the general improvement of the mode of life of the masses, the mortality from tuberculosis has been so materially reduced in the past, as it has in those countries where sanitary efficiency is high, it is reasonable to suppose that the continuation and increase of this general betterment of the masses, in conjunction with all these specific and special agencies now in operation, will cause the diminution of the disease to progress at a far greater rate from this time forward, and the evidence at hand corroborates this inference.

In Germany, if the decline in the mortality from tuberculosis continues at the same rate as at present, the disease will be exterminated in less than thirty years, and in England in about forty. The striking drop in the Prussian tuberculosis death-rate from 31 per 10,000 inhabitants in 1886 to 21 per 10,000 in 1900 is attributed to three causes: (*a*) The widespread knowledge as to the infectious character of tuberculosis; (*b*) the provision for a large number of sanatoria for the working classes; (*c*) the early and systematic resort to sanatoria which the workingmen's State Insurance Department in Germany encourages and assists. In Belgium the mortality which in 1888 was 38.4 per 10,000 inhabitants was reduced in eleven years to 24.5 per 10,000 in 1898; a diminution of 36%. In five eastern states and ten other cities of the United States the mortality has been reduced from 27.2 per 10,000 in 1887 to 21.2 per 10,000 in 1900, a diminution of 18%. In Massachusetts from 1892 to 1902, a period of ten years, the diminution has been from 24.5 to 15.8, or a little over 35%. In New York city the diminution from 1886 to 1901 has been more than 30%, and Dr. Biggs of the department of health of that city, in quoting this diminution, says that it is his belief that with a complete and efficient scheme for dealing with tuberculosis, including suitable hospital accommodations, and the proper enforcement of precautionary measures, the death-rate from tuberculous diseases in New York City may be further reduced one third within a similar period, which would mean the saving of three thousand lives annually.

It is to be borne in mind that the beginning of this rapid diminution is coincident with the diffusion of the knowledge of the present facts regarding tuberculosis, and when the special methods of fighting it were beginning to be operative. Koch discovered the bacillus in 1882, and in 1886 the results of the direct attack were beginning to be appreciable.

The process of civilization, from a sanitary standpoint, at least, has been painful and costly, and it is still a debatable question in many minds whether the present manifestation of it is worth the cost. In its past, by its ignorance and filth, it has inflicted upon the human race many and frightful pestilences. By its increasing enlightenment in sanitary science and preventive medicine it has shaken itself free from the majority of these enemies. Tuberculosis still remains to mock it with its ghastly smile. It is evident, however, from the present weighty movement in progress, that there is a determination to fight it to the death. From the constant increase of anti-tuberculosis associations, the universal dissemination of the facts concerning the disease, the rapid increase of sanatoria, it is apparent that this great movement gains daily in momentum and power. The great awakening is at hand, and from every indication it seems destined to grow and grow until the final consummation is achieved and the "Captain of the men of death," this great white plague, is exterminated.

Original Articles.

THE PHYSIOLOGY OF THE URETER.

BY BYRON ROBINSON, B.S., M.D., CHICAGO, ILL.

THE physiology of the ureter is practically comprised in three functions, viz.: (*a*) peristalsis; (*b*) secretion; (*c*) absorption. All visceral muscles must contract and relax, execute rhythm or atrophy. All epithelial surface — mucosæ — absorbs and secretes. The object of ureteral function is to conduct the urine from the kidney (a urine secreting organ) to the bladder (a urine reservoir), and to prevent its return from the bladder into the ureter (trigonum vesicæ). The method utilized by the ureter in transporting urine from kidney to bladder is by means of periodic rhythm or peristalsis. The ureter in passing from the kidney to the bladder is forced to assume a sinuous course from pressure of adjacent structures which impose on the ureter an irregular form consisting of ureteral dilatations (urinal reservoirs) and ureteral constrictions (isthmuses, spincters).

First, I shall assume from the distention of one hundred and fifty ureters three constant main isthmuses, viz.: (*a*) one adjacent to the distal kidney pole which I shall term the *proximal ureteral isthmus* (ureteral neck); (*b*) one at the arterio-ureteral crossing of the vasa iliaca and ureter, terming it the *middle ureteral isthmus* (flexura iliaca ureteris); (*c*) one at the entrance of the ureter into the bladder, demonstrating it as the *distal ureteral isthmus* (vesico-ureteral sphincter or vesico-ureteral valve).

Second, consequently I shall assume three

ureteral dilatations or urinal reservoirs, viz.: (*a*) one consisting of the calyces and pelvis, the *proximal ureteral dilatation* or reservoir; (*b*) the main lumbar, middle ureteral dilatation or *lumbar spindle;* (*c*) the main pelvic ureteral dilatation or *pelvic spindle.*

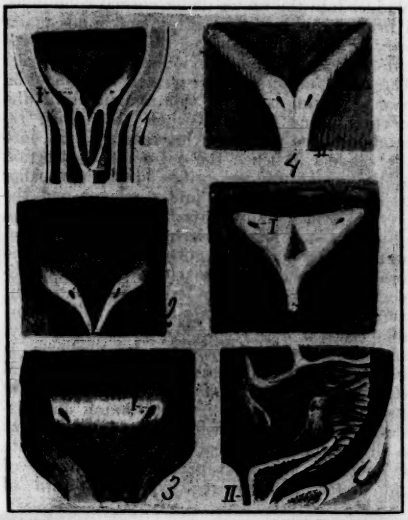


FIG. 1.

The strictures, isthmuses, dilatations, and reservoirs endow the ureter with a definite form which adds interest to its physiology. The chief ureteral constrictions and dilatations are undoubtedly mainly due to the physiology or functional activity of the ureter and the environments of erect attitude. However, ureteral constrictions and dilitations are a heritage of the irregular calibered Wolffian ducts. It is of practical importance to call attention to the fact that ureteral constrictions or isthmuses obstruct ureteral calculus, and also that the ureteral strictures or isthmuses may be mistaken for pathologic ureteral strictures. I will also call attention to the fact that, frequently, apparently physiologically, the ureteral constrictions and dilatations may become exaggerated; however, it is the ureteral dilatations alone which have become chiefly increased, for the ureteral isthmuses yield comparatively little. The ureteral catheterizer perceives the ureteral constrictions from obstruction to the ureteral catheter and the ureteral dilatation from the freedom of the ureteral catheter and excessive flow of urine while the instrument is in the dilatation.

EXPERIMENTAL OBSERVATION.

If one takes a spare dog of some twenty pounds, anesthetizes him in a room of 75°, incises the abdomen from the xiphoid cartilage to the symphysis pubis, and with warm towels separates the abdominal viscera in order that the ureter may be noticed shimmering through the dorsal peritoneum, the following phenomena may be observed: every three to five minutes a peristaltic wave passes from the proximal to the distal end of the ureter. The rhythmical movements begin in the ureteral pelvis and calices. The time required for the ureteral rhythm or wave to pass from kidney to bladder is ten to fifteen seconds.

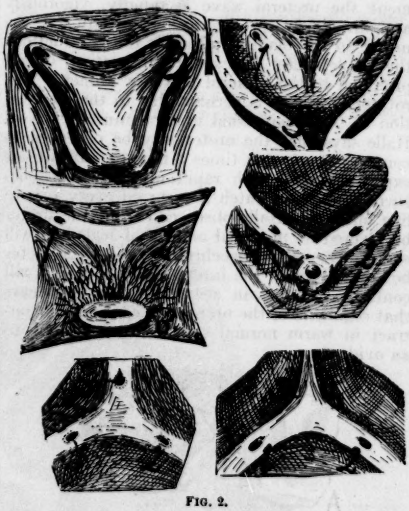


FIG. 2.

The phenomena observed during the passage of the ureteral rhythm are: (*a*) rapid circular, muscular, ureteral contraction; (*b*) longitudinal muscular contraction; (*c*) a white circular band due to exsanguination at the point in the ureter where the rhythmical wave is traveling. The caliber and diameter of the ureter at the point of the passing wave is smaller and more cylindrical than at adjacent segments; (*d*) the periodic ureteral peristalsis is of extreme vigor and brusqueness as one may perceive by sight and by holding the ureter between the finger and thumb during the distalward movement of a ureteral wave. The brusque, energetic, vigorous ureteral rhythm differs from that of all other glandular exit ducts. It resembles more the peristalsis of the tractus intestinalis. Yet it also resembles in its brusqueness the vigorous cardiac contractions. The phenomena are modified by environments, viz.: temperature, kind, degree and length of anesthesia, trauma, visceral exposure, fatigue, irritation of ureter, electricity, blood supply, amount and composition of urine secreted, vigor of subject, etc. The periodic peristaltic wave proceeds, regardless of the position of the subject, hence, force of gravity may practically be disregarded. The ureter appears to begin to contract at about the distal pole of the kidney, near the proximal ureteral isthmus. The ureter existing as a white or bluish gray cord suddenly assumes a cylindrical form, its lumen and volume diminish, its color

becomes a pale white for about three quarters of an inch, from exsanguination. Its muscular bundles, acting like living ligatures, limit the blood, exsanguinate the current, in the ureteral wall. A fine oscillating movement begins at the proximal ureteral isthmus, the sensitive segment of the ureter, and in a moment the ureteral pelvis contracts; whence at the same moment the ureteral wave is rapidly, vigorously and brusquely propagated distalward on the ureter to the bladder. During the contractions the whole ureter appears to be erecting, drawn proximal to the ureteral pelvis or kidney. The rotatory erection is perhaps due to the contraction of the longitudinal ureteral muscles. Noel Halle says that the ureter may be observed to contract two to ten times a minute. In all our experiments no such rapid ureteral waves occurred. By the watch it recurred every two to five minutes. Halle observes that if the ureter be severed its proximal and distal segments will continue to contract isochronous, and if the ureter be severed twice the intermediary segment will contract. This is in accord with experiments that segments of the ureter will continue to contract in warm normal salt solution, similar to an oviduct.

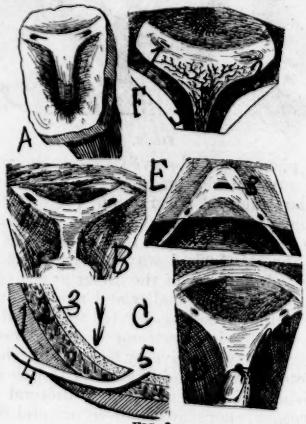


FIG. 3.

THE CAUSE OF THE URETERAL PERIODIC URETERAL RHYTHM.

The periodic ureteral peristalsis, rhythm, is due to the sympathetic nerve ganglia located in the wall of the ureter, especially in the tunica fibrosa ureteris, the cellular tissue framework support. The ureter, like all other viscera, has its own peculiar periodic peristalsis, rhythm, ruled by what I shall term the automatic ureteral ganglia.

A VESICO-URETERAL VALVE.

Physiologic Data from Cystoscopic Inspection of the Distal Ureteral Orifice in Woman. — The cystoscope reveals the most practical physiology of the distal ureteral orifice and its relation to the bladder. The distal ureteral orifice is practically vesical mucosa and is subject to the same laws as the vesical mucosa. The normal function of the ureter is to convey urine from the kidney to the bladder and to prevent its regurgitation or return into the ureters. It is impossible for the urine to regurgitate from the bladder into the ureter under normal conditions. I proved this by injecting air and fluids under varying conditions into the bladder. The urine enters the bladder by periodic spirts and jets. The distal ureteral orifice presents no material change during ureteral contraction until the spirting urine appears, when the orifice retracts and the column of urine is projected into the bladder, whence the vigorous contraction of the distal ureteral orifice obstructs further passage of urine. The ureter relaxes and the ureteral orifice resumes its normal location and state of rest. The wonderful adjustible vesico-ureteral valve, a non-regurgitant valve, is the location around which is clustered vast physiologic functions, and from lesions and consequent bacterial disease it becomes the atria of innumerable ureteral and renal infections. Practically, the chief ureteral physiology, for medicine, is located at the distal ureteral orifice. The vesical segment of the ureter changes its form and caliber under varying conditions, contraction and distention of the bladder (diastole and systole), but in all the changing vesical panorama one can note distinct provisions for guarding the lumen of the ureter whereby regurgitation, return of

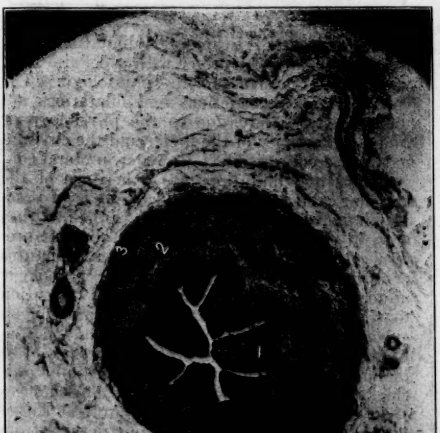


FIG. 4.

urine in the ureter, is prevented. In the distended bladder the ureteral valve is markedly oblique. In the contracted bladder the ureteral valve is relatively extended. Besides, during ureteral peristalsis the distal ureter puckers its mouth like a contracting anus. However, the guard to prevent urinal regurgitation into the ureter is the physiologic action of the vesico-ureteral valve, for this valve adjusts itself to all intra-vesical pressure, to all physiologic conditions of the bladder. The vesico-ureteral valve is the guard, the sentinel for the ureter and kidney, it is the policeman for the ureter and kidney. Its integrity alone prevents ascending infection. The health of the ureter and kidney depends absolutely on the protection — non-regurgitation — of the vesico-ureteral valve. Its physiologic integrity decides the limits of health and life.

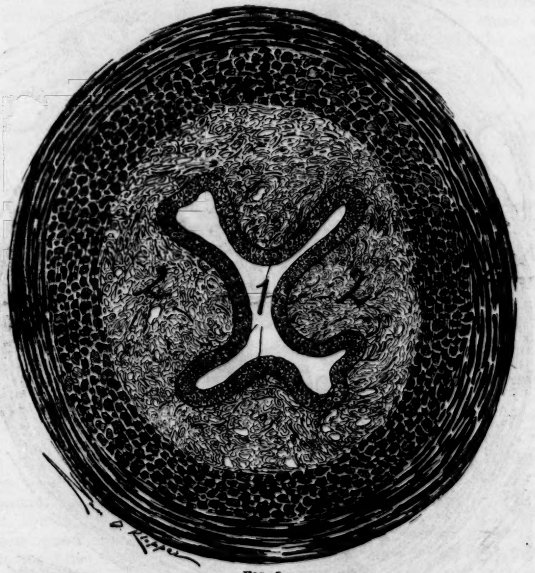


FIG. 5.

FIG. Dog. (Author.) Ureter of dog, drawn under tunica mucosa. 2, Tunica propria. 3, Tunica muscularis longitudinale (internal). 4, Tunica muscularis circulare (external). The tunica propria is more extensive in dog than in man and has a more definite contour. The longitudinal and circular layers are more definitely isolated in dog than in man. The tunica mucosa ureteris is almost an unchanging structure in all animals.

Physiologic experiments demonstrate that the ureter possesses certain conditions which explain its functions.

SENSIBILITY.

The ureter possesses sensitive nerves, as may be noted by irritating it. The tunica mucosa is excitable. Some years ago I ligated quite a number of ureters of dogs to note resulting obliteration of renal function. I observed that such ligature was painful — however periodically. All observers note the ureteral calculus is painful. The terrific pain of some ureteral calculi is sufficient to indicate that numerous sensitive nerves reside in the ureter, and especially in the tunica mucosa. The pressure of urine on the mucosa of the ureteral pelvis and calices appears to interrupt rhythm. However, ureteral segments with no urine on the mucosa will contract rhythmically.

CONTRACTILITY.

The ureter is provided with contractile power from the possession of a muscular wall. One can distinctly observe the peristaltic wave in dogs. According to my records of experiments it repeated itself on the average every three to five minutes. Boari notes that it may repeat itself several times a minute. In none of our experiments did such contractions occur. The physiologic peristaltic ureteral wave is very energetic in dogs, as one can perceive while manipulating the ureter. The mechanically induced contraction is less vigorous; it is more diffuse, irregular in rhythm and direction. The peculiar energetic brusque and vigorous ureteral rhythm may be observed in the consequent dilatation of the ureter proximal to a ureteral stricture.

The summation of factors influencing ureteral contraction, are:

(1) Sympathetic nerve ganglia located in the ureteral parietes, especially in the tunica fibrosa ureteris.

(2) The flowing and pressure of urine on the tunica mucosa ureteris (similarly as food on the

mucosa of the tractus intestinalis induces peristalsis).

3. The tunica mucosa ureteris is excitable, sensitive. This is demonstrated by violent ureteral peristalsis induced by ureteral calculus, concentrated or morbid urine or the ureteral catheter. Also by ureteral obstruction as ureteral stricture, flexion, pressure.

(4) The ureteral contractions increase with increased quantities and concentration of urine, which demonstrates that urine pressure plays a rôle.

(5) Diaphragmatic contractions. (6) Vascular peristalsis. (7) Peristalsis of the tractus intestinalis. (8) Temperature. (9) Condition of muscle (fatigue or quietude).

If urine pressure or ureteral irritation be excessive, the ureter relaxes from fatigue and slows its rhythmical wave.

(10) Mechanical, chemical or electrical irritation. (11) Tumor pressure as in pregnancy. (12) Cerebral activity or irritation.

(13) The renal function has a capital influence on the physiology of the ureter, especially as regards quantity and condition of the urine.

(14) The ureteral pelvis usually holds several teaspoonfuls of urine and hence will experience the greatest intra-ureteral pressure. Microscopically the ureteral automatic ganglia are difficult to demonstrate, requiring usually numerous trials.

PHYSIOLOGIC AND ANATOMIC INDEPENDENCE OF THE URETER.

The ureter is an independent organ, physiologic and anatomic, performing its function as independently as the heart, uterus, oviduct, intestine, liver and pancreas. If the oviduct be extirpated, immediately placed in warm salt solution and gently irritated, it will pass through its rhythmical motion for about a half hour. Similarly, if a segment of severed ureter be placed in normal salt solution at 100° F., the ureter being gently irritated, it will continue its rhythmical, periodic contractions. The ureter is independent of the bladder as the ureteral rhythm is propagated to or from the bladder, demonstrating independence of vesica urinaria and ureter. I found by repeated dissections that the ureter is anatomically independent of the bladder wall, for it is separated from the vesica urinaria by a stratum, a cylindrical sheath of connective tissue, in exactly a similar manner that the ductus choledochus communis is separated from the caput

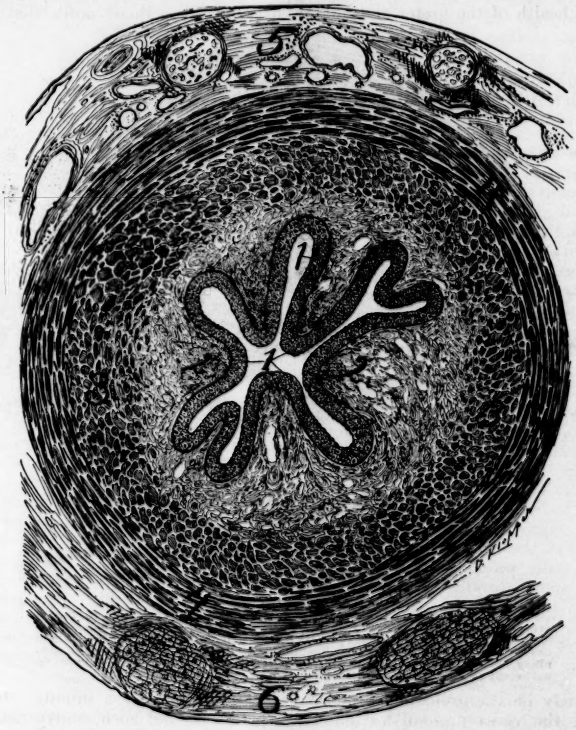


FIG. 6.

pancreatis as it passes in its journey to enter the duodenum. The ureteral and vesical muscularis do not blend. The ureter penetrates the bladder obliquely with its three tunics. The intravesical pressure perhaps does not influence the pressure in the ureteral pelvis. Regurgitation of urine into the ureter is impossible, as the vesical mucosa forms a valve, and the more urine in the bladder the more secure becomes the valve (hence the greater pressure); by coaptation against regurgitation. Slow pressure may produce extensive ureteral dilatation from constant physiologic efforts. The resistance of the ureteral sphincter — uretero-vesical valve — is remarkable. In pathologic cases the ureteral orifice participates in the dilatation. The ureteral orifices may be patent, patulous, admitting a sound. When the obliquity of the ureteral orifice — the valve — is deficient, the ureter and bladder communicate freely as one tract, one continuous channel.

DIRECTION OF THE URETERAL PERISTALSIS.

Physiologically, the peristalsis moves distalward. It begins in the region of (*a*) the distal ureteral pelvis; (*b*) the proximal isthmus; (*c*) the calices. The regular physiologic ureteral rhythm travels from the proximal ureteral end (kidney) to the distal end (bladder). The three-quarters inch of longitudinal, whitened, exsanguinated ureteral zone representing the segment of the ureter immediately proximal to the ureteral wave, represents phenomena quite different from intestinal or genital peristalsis. Thomas Engleman, the celebrated Berlin physiologist, noted that artificial irritation of the tunica mucosa does not induce ureteral contraction. The irritation must involve the tunica muscularis. This does not accord with conditions causing pain, with ureteral colic, induced by calculus irritating the tunica mucosa. Mechanical irritation may induce anti-ureteral peristalsis. Boari reports that the injection of sulphate of indigo in the veins produces visible ureteral rhythm (in rats and rabbits).

PHYSIOLOGY OF THE URETER CALICES.

The function of the ureteral calices is to collect and conduct urine from the renal pyramid to the ureteral pelvis. This continues uninterrupted through life, if no obstruction is offered. Any obstruction is liable to disorder the function (peristalsis) by depositing urinal residue in the lumen, which serves as a bacterial medium, whence, from deposits, calculus arises.

The calices have resting and acting periods. They act rhythmically. The urine secretes continually, but the ureteral calices act only when sufficient quantity of urine is collected to produce by pressure a peristaltic wave of the calices.

The main disease of the ureteral calices results from mechanical obstruction. The movements of the diaphragm and liver on the kidney aid the ureteral calices to empty themselves. Also, the contractions and dilatations of adjacent organs aid in promoting ureteral peristalsis. The ureter is a muscular conduit, and hence possesses rhythmical waves. Force of gravity may aid slightly, but the ureter would force the urine in the bladder with the subject standing on the head. As the urine collects on the mucosa of the calices it induces relax action and a rhythm. The ureter is contractile, as one can observe regular peristaltic waves on animals. Electrical application to the ureter induces ureteral contraction. The irritability of the calices is influenced by temperature, composition of urine, repose, activity and the quantity of fluid poured on their mucosa. Doubtless the chief cause of calicular rhythm is urine pressure on the mucosa, as food on the mucosa of the tractus intestinalis is the chief cause of its peristalsis. Also pressure of urine in the calices releases peristalsis.

CONSERVATIVE SURGERY OF THE UTERINE APPENDAGES WITH ESPECIAL REFERENCE TO THE OVARIES.*

BY EDWARD L. TWOMBLY, M.D., BOSTON,

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In bringing this subject before the Society, it is not to take an extended survey, for it has already been very ably done by distinguished observers like Dr. A. Palmer Dudley in his chairman's address before the American Medical Association at New Orleans; by Dr. Howard A. Kelly in his book; by Dr. H. C. Coe on "Secondary Laparotomies"; and by Dr. W. L. Burrage who has very carefully tabulated 187 cases. My point is not to present statistics at this time, but to call attention to one important factor in the conservative operations on ovaries alone, without reference to tubes or their complications.

The pendulum of surgery in women's diseases swings back and forth. In former years, it was for the complete removal of all diseased organs, but now it is for the preservation of the same and of any part which may perform its function again. Since 1897, our best operators in gynecology have advocated very conservative measures, and I believe that all our gynecological staff at St. Elizabeth's Hospital are in accord on this subject.

While each man has his individual way in doing his work, we are harmonious in the following conclusions:

For myomectomies by the abdominal route, no deaths or bad results have been noticed, and the animal suture has invariably been used. If one ovary is diseased, and the other ovary healthy, the diseased one is generally removed. Where both ovaries are diseased, resection of one or both is practiced. Whatever healthy ovarian tissue there seems to be, however small, is left. Dr. F. W. Johnson reports one secondary operation after both ovaries had been resected. Dr. R. A. Kingman reports none. Dr. W. L.

* Read at the meeting of the Section for Obstetrics and Diseases of Women of the Suffolk District Medical Society, April 27, 1904.

Burrage reports that in a large number of cases (85) which he has tabulated for a number of years, five secondary operations have been done, and in four more cases, another operation is needed. In my own 42 cases, seven secondary operations are indicated, but only two have been done. It is very true that all our chickens do not come home to roost, so that it is fair to infer that the proportion of secondary operations is larger than appears.

Dr. Burrage very aptly replies to my question, "How many secondary operations because of conservative work on the ovaries," by saying, "None 'because of,' but I can recall several cases in which secondary operations have been necessary owing to the development of further lesions."

Dr. H. C. Coe remarks that a secondary operation does not imply careless or imperfect work on the part of the former operator. He says, "An ovary which appeared perfectly normal has undergone cystic degeneration or become the seat of a large tumor, and develops rapidly from apparently healthy organs after a primary operation." He queries whether it may not be "circulatory disturbances after ligation of large vessels." Conservative work on the tubes has not thus far proved very satisfactory, especially in gonorrheal cases. I prefer to remove them by the V-shaped incision into the horns of the uterus, and leave the uterus when possible, although many operators advocate removing the uterus as well.

I wish, however, to-night, to limit my paper to the discussion of the preservation of the ovaries or resection of the same as the best surgery of the present day. In some of my cases which I shall mention in brief, I have been ultra-conservative, and so have a larger number of secondary operations indicated. I believe that the procedure, which I wish later to emphasize, will do away with a number of such operations in the future.

When is a conservative operation *not* indicated?

(1) In women forty years and over, or in other words, those who are at the menopause. Dr. Burrage further limits this class in his paper to "pronounced neurasthenics."

(2) In gonorrheal affections, where the pain and distress and repeated flare-ups in diseased tubes and ovaries cause a life of continued suffering.

(3) In malignant disease of one ovary, such as a papilloma, sarcoma, or carcinoma. Dr. Kelly disagrees in this conclusion saying, "If such a disease as a superficial papilloma is seen at the very beginning and the other ovary appeared perfectly normal, I should without hesitation save it in a young woman with the expectation of carefully watching the patient for several years, and of operating at once upon detecting the slightest evidence of disease."

(4) In tumors that involve the whole organ.

(5) In tuberculosis of the ovary.

In all other cases, and especially in young women where some risks must be taken to preserve the menstrual life, Dr. Kelly says in his admirable chapter on "Conservatism," the surgeon should act as if the patient were "his nearest relative, and try hard to avoid mutilation." In other words, the conservative operation should be done.

What are the diseases which attack the ovaries, and where can we resect them without great danger of their recurrence? The two great divisions are cystic and solid. The solid tumors are fibromata, sarcomata and carcinomata — 5% of all cases. They are malignant types, or may become so in the case of fibromata, and there is no question of not removing them entirely.

The cystic tumors are divided into simple, proliferating, dermoid, and parovarian. We have especially to do with the first three. Cysts may originate in any part of the tubo-ovarian structure, that is, in the medullary or parenchymatous portions of the ovary. The surface of the cyst varies from the bluish white or greenish, to brown, yellow, or glistening white.

The follicular cysts and those of the corpus luteum are simple and easily dealt with. The best treatment is to let them alone. Sometimes fifteen to twenty follicular cysts are found (dilated Graäfian follicles) which rarely attain great size, although some may enlarge to the size of a goose egg. This disease is generally bilateral, and there is pain at the catamenia and to the touch, so extensive resection is indicated.

Dermoid cysts originate in the parenchyma and often occur with large glandular or proliferating growths. All operators can testify to the irritating qualities of their contents, so every precaution should be used to prevent rupture, and the escape of their contents into the abdominal cavity. Teratoma have been classed with dermoids, and are a malignant and gigantic growth.

The proliferating cysts form the greatest class of ovarian tumors, and originate both in the parenchyma and in the hilum which is richly supplied with blood vessels. They are the glandular and papillary growths, and the latter are often seen bursting through the connective tissue from which they may also spring, forming tufts, and infecting the general peritoneal cavity.

In these proliferating cysts, there is always danger of malignancy, and if both ovaries are in anywise affected, both should be removed. "One ovary being affected, it is justifiable to remove both, although not always advocated." (Pozzi.)

We are thus narrowed down to a small class of tumors in which resection should be done, namely: — the non-proliferating cystic tumors which have their origin in the parenchymatous zone or cortical portion. If seen early, much of the ovary may be saved. If seen later when much of the cortex is involved, and the germinal epithelium of the cyst has proliferated to form glandular structures, we have the so-called adenoma which is very common and may attain a great size. It is made up of numerous small cysts and the whole ovary will have to be sacrificed.

It is taken for granted that conservatism on the ovaries is far more satisfactory than such work on the tubes, therefore such operations should be performed upon the class mentioned, although the general adoption may be a cause for more secondary operations.

The patient should be made to understand that possibility, but she is given the additional hope of the preservation of ovulation, menstruation, and the chance of bearing children. In no case should we make a promise to our patients to save an ovary or ovaries that will render our operation useless and of no value.

To the question, "In a doubtful case, would it not be wiser to let an ovary alone, if we do not feel justified in removing it," I would reply, decidedly, " No." In any young woman, a suspicious ovary should be incised, examination of its interior be made, and if healthy, it can be sutured again with fine cat-gut without harm (according to my belief). I think this is best done by splitting longitudinally on one part of the convex border down to the hilum, and, if necessary, enlarging the incision in the longitudinal direction so that the diseased portion or cysts can be excised. Careful approximation and closure of the incision with fine cat-gut should follow afterwards. Simple puncture of cysts with cautery or the knife, unless very superficial, give rise to pain, swelling, and enlargement from slight hemorrhage which takes place and is often overlooked. I do not recommend this procedure. Secondary operations are reported where the cysts had been previously thus treated.

My plea is,—that an exploratory incision should be made in an ovary which has been the seat of constant pain, with exacerbations during the menstrual periods, even if it appears normal or slightly enlarged. The same procedure should be done in both ovaries where there have been constitutional symptoms pointing to the ovaries, when they seem normal, or large but otherwise healthy. As a large cyst involving the ovary is likely to be duplicated on the other side, I advise the exploratory incision in the second ovary, thereby lessening the chance of recurrence, and saving a secondary operation, often finding and removing by resection a similar growth beginning in the apparently unaffected ovary. Careful resections of the ovaries presenting any abnormalities would eliminate many a cyst and the ovaries still perform their functions. I am convinced that pain would be relieved by a wedge-shaped incision and the wedge removed in thickened capsules; and, by a more careful approximation, adhesions, which are stated to be the greatest cause of secondary operations, would be more and more avoided.

I wish to illustrate my position, by giving briefly the outlines of a few of my cases.

Case I. Where incision probably saved years of suffering. E. G., fifteen years. Single. Backache and pain in abdomen. Sharp pains in right inguinal region. Dysmenorrhea.

Diagnosis: Retroversion with prolapsed ovaries, right one enlarged.

Operation Aug. 28, 1900. Curettage, resection of right ovary and suspensio uteri. Conditions above noted were found, and right ovary somewhat cystic. Incision made and carried deeper to find a small dark-blue cyst in the center of the ovary which was removed without rupturing. It proved to be a dermoid cyst with hair and part of a tooth. Recovered well from operation and was free from symptoms for a year. April, 1904, her physician reported that the pains had returned gradually and that he had found the uterus retroverted, and ovaries normal. Office treatment for six weeks for retroversion had caused all symptoms to disappear.

Case II. A. P., twenty-four years. Married, one child. Menstruation profuse and painful. Enlarged left ovary. Operation July 12, 1900. Curettage, removal of left tube and ovary which was disorganized by a large cyst, size of an orange. Many adhesions. She was better for a time afterwards but is under my care now for a large mass involving both ovary and tube on the right. She has never been well. I believe that I could have saved her much suffering by resection of the right ovary, which should have been investigated further, at the first operation.

The next two cases show that I was ultra-conservative, with poor results.

Case III. V., seventeen years. Single. Always delicate. Constant pain in back and in both ovarian regions. Headache. Menorrhagia. Prolapsed and slightly enlarged ovaries.

Operation Nov. 10, 1897. Curettage, suspension of uterus and ovaries. The ovaries though somewhat large did not appear either cystic or diseased. They were equal in size and I contented myself by suspending them close to the uterus, shortening the ovarian ligaments. Good recovery but relief very short. 1900. Examination showed right ovary twice as large as the left, with the same pains, and general health only slightly improved. Febuary, 1904. Patient married and four months pregnant, but reports backache, " hard time with her stomach," and general weakness. She is afraid that she will not be able to go to term or " ever do anything like other girls."

A resection of both ovaries or even removal of one ovary and resection of the other would have saved her these years of discouragement.

Case IV. B. L., single, twenty-three. Backache for two years. Menorrhagia every two weeks. Retroversion and small cyst of left ovary.

Operation July 30, 1900. Curettage. Cyst of left ovary punctured, and hydatid of morgagni tied off. Suspensio uteri. Good recovery, but six months afterwards, she writes that the same symptoms persist, although menstruation is regular. She is unable to work. September, 1902, she reports, " Able to work most of the time, but far from well. Backache all the time." The cyst of the left ovary was quite deep and bled freely. It should have been resected or removed, and the right ovary investigated.

Case V. E. H., thirty years. Married, one child. Backache, menorrhagia. Right ovary large as a hen's egg. Operation Nov. 4, 1902. Curettage. Right ovarian cyst removed with its tube. Left tube and ovary tied down by adhesions, but freed and left in. Appendix normal.

July, 1903. Patient felt very well until she went in surf-bathing, when she noticed pain and swelling in left side. Examination showed enlarged and cystic ovary, and a secondary operation is under consideration. Again, an incision might have removed a beginning cyst, which developed within a year.

The following two cases had the second operation with the following results. Both were neurasthenics.

CASE VI. M. A., thirty-five years. Married, no children. Operation July 19, 1898, for "dragging on right side" and sterility. Curettage. Trachelorraphy; right cystic ovary and occluded tube removed, suspensio uteri. Many adhesions between uterus, adnexia, omentum, and intestines. Left side freed and left. Good recovery from operation, but not relieved. March, 1901, Dr. Johnson did a second and complete operation, removing remains of right tube by V-shaped incision into horn of uterus, also removing left tube and ovary, and appendix by inversion. More adhesions were broken up, and uterus suspended. 1904. Uterus in position but great pains in right side, occasional vomiting, and not relieved. *Query*: Was the first operation too conservative, or would the results have been better if the entire right ovary and tube had been removed and the left resected?

CASE VII. M. E., thirty-six years. Married, four children. Pain in back and vagina. Cannot sit down without pain. Retroflexion. Operation July 5, 1898. Curettage. Both tubes and ovaries found apparently normal and free from adhesions, and were allowed to remain. Ventral fixation. No relief. Aug. 13, 1898; coccyx removed by Dr. C. A. Porter, as several of the staff diagnosed it as the probable source of continued pain. Still no relief. September, 1899, patient returned from her home, and a complete hysterectomy, with the removal of the appendages also, proved her salvation, and everything relieved.

In such a case, the last operation should have been the one of election, and not the conservative operation.

CASE VIII. P. K., sixteen years. Single. Pain in stomach, back and left side, radiating down left leg. Retroversion, and mass close to uterus on left, size of pigeon's egg. Operation Aug. 28, 1902. Pelvis full of adhesions. Abscess of left ovary fixed in broad ligament removed. Right ovary and tube which was patulous with no pus in it, were freed from adhesions, and allowed to remain. Recovery good. Pathologist's report, "Gonorrheal Abscess." Pain began on right side and continued for a year, when a secondary operation was done, removing the right ovary and tube, which proved to be a lighting up of the gonorrheal infection.

Had I known the facts, which were denied at the first operation, I would have removed one ovary and both tubes.

Conclusions drawn from all observers agree that, in young women who are desirous of having children, part of the ovarian tissue should be preserved, even at some risk. They also affirm that resection of an ovary is not a cause *per se* of secondary operations, or of increased mortality.

Therefore in doubtful cases, I go so far as to advocate the exploratory incision. (1.) It has not been proved to increase the danger. (2.) It is a wise proceeding when the other ovary is cystic or contains a papillary growth. (3.) It may prevent a secondary operation. (4.) It should prevent removal of a normal ovary. (5.) It may disclose a growth within or beginning cystic formation which can be easily excised. (6.) It is a conservative operation, consuming but little more time.

Ultra-conservative operations have not proved successful in my hands.

Medical Progress.

PROGRESS IN OTOLOGY.

BY PHILIP HAMMOND, M.D., BOSTON.

EXTERNAL AUDITORY CANAL. — ECZEMA.

RANDOLPH [1] believes in abstaining from the use of water, and finds great relief from the use of either yellow oxide of mercury, or salicylic acid in the form of an ointment (2%). For the itching which so often accompanies this disease, he sometimes adds a few drops of carbolic acid to the salicylic ointment, and the application of solutions of nitrate of silver, ($\frac{1}{10}$ or $\frac{3}{10}$) to the canal is strongly advocated by Mangan.[2] Where there is vesicular eruption the skin may be dusted with a drying powder such as zinc oxide, calomel, or subnitrate of bismuth.

FURUNCLES.

Sack [3] employs the following method in the treatment of furunculosis: The canal is first thoroughly cleansed and dried, and then a cotton tampon, previously dipped in a solution of carbolated glycerin, is pushed tightly into the ear. This is allowed to remain from a few hours to a day, the object being to exert considerable pressure on the inflamed part of the canal. Incision should be practiced only when there is definite abscess formation.

Reich [4] claims superior results in the treatment of furunculosis from the use of hot dry air. There seems to be no deleterious action upon the skin from its use, there is an increased hyperemia, promoting phagocytosis, and rapid absorption of infiltration.

An affection of the ear which seems to attack Europeans living in the tropics has recently been described by Müller [5] as ossifying otitis externa. Inspection shows a narrowing of the external canal, with great infiltration of the soft parts, closely simulating hyperostosis of the external meatus. This swelling in many cases disappears rapidly when moist compresses are applied. In no case was the middle ear found involved, and in only one was there exostosis of the canal.

MIDDLE EAR.

In the treatment of acute inflammation of the middle ear, Brunel [6] advocates local bleeding during the early and painful stage, leeches being used for this purpose. He also uses a carbolated glycerin solution ($\frac{1}{10}$) in the ear, at the same time shrinking any hypertrophy in the nares by the use of frequent inhalations of mentholated oil. The danger of inflation at this stage of the inflammation is pointed out by Randolph who believes, as does also Coussieux,[7] that a mixed infection may in this way be produced which will be worse than a suppurative process due to one organism.

[1] Progressive Medicine, Mar. 1, 1904.
[2] Touraine méd., July 15, 1903.
[3] Monatschr. f. Ohrenh., Jan., 1903.
[4] Zeit. f. Diastet. und Physikal. Therapie Bd. vi, H. 12.
[5] Zeit. f. Ohrenh. lxi., H. 1.
[6] Rev. Heb. de laryng. etc., 1903, No. 23.
[7] Ann., des mal. de l'oreille, etc., May, 1903.

Botey [8] insists that after paracentesis of the drum membrane no irrigation be used immediately, but that a small wick of sterile gauze be introduced, drainage being kept up in this manner. Even after removal of ossicles he employs the gauze drain, believing that in this way the entrance of infectious germs may be prevented, and that only when they have already gained admission should we try to inhibit their growth or destroy their activity.

S. MacCuen Smith [9] states that we are more apt to have intra-cranial complications following influenza than with the exanthemata, and the infection in these cases is so insidious that it may be well advanced before the complication is discovered, and in this way occur even when the physical symptoms denote marked improvement in the general condition. Early and free incision of the drum should be made in these cases.

DISTURBANCES OF HEARING IN ACUTE SUPPURATIONS OF THE EAR.

Ostmann,[10] from a careful examination of a series of cases of acute suppurative inflammation of the middle ear, believes that the inflammation is not confined to the tympanic cavity solely, but that the labyrinth is often affected, because of the disturbance of hearing for the upper scale. He accounts for this phenomenon in the lighter cases by the existence of a slight hyperemia, and thinks that in the severer forms there is undoubtedly a new formation of connective tissue. To detect these changes in the hearing it is necessary to employ some instrument capable of producing the high notes, and Ostmann regards the recently modified Galton whistle as in every way suitable and necessary for this examination. Without such careful inquiry into the physical changes of the ear it is impossible to give an intelligent prognosis regarding recovery.

In a consideration of the aural affections of infancy, Morse [11] emphasizes the following points: Otitis media is extremely common in childhood, and of great importance in differential diagnosis. It should be looked for in all doubtful cases where the symptoms cannot otherwise be easily explained. Inflammation of the ear is not necessarily associated with ear-ache, and the putting of the hand to the ear is common even when the ear is not diseased. Tenderness around the ear is an extremely unreliable guide. The only satisfactory way to examine ears is with a speculum, one smaller than usually sold with most sets being required. Among the common manifestations of otitis media are serious constitutional symptoms, suggestive of meningitis, pneumonia, gastritis, etc.

TUBERCULOUS OTITIS MEDIA.

Grimmer [12] observes that the tuberculous process in the tympanic cavity may reach quite an advanced stage before the external surface presents any pathological change. The reason for multiple perforations of the drum he attributes to the greater resistance of the middle or fibrillary layer to the destructive process, as this yields only after the mucous layer has ulcerated. According to this authority, primary tuberculosis of the ear is very rare, involvement of the ear almost always following some general infection. The characteristic symptoms are absence of pain, caries, and multiple perforations. The granulations are pale and bloodless looking, instead of red, as usual.

DISEASES OF THE EAR AND LIFE INSURANCE.

Burger [13] believes the ordinary examiner unable to properly estimate the risk involved in accepting the application of a person having aural disease. Particular attention should be paid to the suppurations of the middle ear, as these are most liable to prove dangerous. His conclusions are that an applicant for life insurance should unquestionably be refused when he has chronic suppurative otitis media with any of the following complications:

(1) Tuberculosis, or cholesteatoma formation.
(2) An inflammation of the attic or mastoid.
(3) Encroachment of the process on the bone.
(4) Facial paralysis, vertigo or hemicrania.

TREATMENT OF MIDDLE EAR.

Bezold [14] is strongly opposed to packing the canal with boric acid powder or gauze, and alludes to some twenty cases which he has seen in the past few years which were treated in this way. Maceration and infiltration of the canal are promoted, and pus is apt to be backed up in the tympanum. A review of the cases which he has observed shows four cases of empyema of the mastoid, two cases of gravitation abscess in the neck, two of caries of the mastoid, and one of necrosis of the labyrinth.

McKernon [15] suggests the use of crystals of carbolic acid in the treatment of chronic suppurations of the ear. The canal is filled with the crystals, the patient being in a recumbent posture, and they are allowed to remain for several minutes. After removal, alcohol is used to counteract the influence of the caustic on live tissue, while the diseased area is cleansed and stimulated. But little pain is said to attend this procedure.

Lednev [8] believes that the best results in the treatment of otorrhea are obtained from the use of iodoform. He reports twenty-three cases treated in this way, with cure in all but one.

Haug [16] has experimented with anesthesin in inflamed ears, mixed with alcohol and glycerin, or alcohol and water, and carried into the ear on a piece of gauze. Painful affections of the ear, especially of the external canal, seem to be relieved in from two to five minutes, lasting for at least two hours. Apparently its use exerts no influence on the course of the disease, and it does not seem to lessen the pain of paracentesis.

[8] Rev. heb. de laryng. etc., 1903, No. 22.
[9] Laryngoscope, June, 1903.
[10] Zeitschr. f. Otiatrie, Bd. xlii, H. 3.
[11] Jour. A. M. A., July 18, 1903.
[12] Zeit. f. Ohrenh., Apr., 1903.
[13] Klinische Vortrage aus dem Gebiete der Otologie, etc., Bd. v, H. 4.
[14] Arch. of Otol. May, 1903.
[15] Medical News, Jan. 17, 1903.
[16] These de Toulouse, 1903.

PREVENTION OF SERIOUS COMPLICATIONS OF EAR DISEASES.

In a paper on this subject, Hiram Woods [17] states that comparatively few cases of otitis media are seen by the aurist in their incipiency, yet early recognition may be necessary to save life, or at any rate to preserve the hearing. Relief of pain presents itself as the first duty of the physician, and he who trusts to the use of narcotics for this purpose is probably losing valuable time. Pain alone as a symptom of acute suppurative otitis media is of little value. The only satisfactory way of ascertaining the condition of the tympanum is by objective examination of the membrane, and when bulging occurs, indicating infection of the middle ear drainage by incision should be at once called for. Meierhof [18] believes that few cases which have the benefit of early expert treatment require major operation. He also insists on the importance of early and free drainage of the drum cavity.

Alexander [19] has used constant heat in the treatment of mastoiditis. He applies it by means of an apparatus similar to Leiter's coil. The patient is put to bed, and the apparatus used for from one to seven hours, the temperature of the water being from 111 to 114. Eighteen cases are reported, and of these, seven seem to have benefited from the use of the heat. Three did not tolerate the coil, and in the remaining cases, while the heat was grateful, it was subsequently necessary to operate.

Bezold [14] has noticed that the more severe cases of mastoiditis, and particularly those cases having protracted suppuration from the middle ear, are apt to have large pneumatic cells, usually remote from the antrum. The empyema may become localized here, even after the tympanic perforation has closed, and remain latent for a considerable period of time. He makes it a rule to operate when a suppuration has persisted for more than two months, and he has always found large cavities filled with pus and granulations.

Various contrivances for applying treatment to the Eustachian tube in the chronic catarrhal diseases of the middle ear continue to interest many writers. Rourse [20] employs a sound for mechanical dilatation, although he generally introduces some medication along with this, such as a glycerin-iodine mixture, passing this well up into the tympanic cavity. The sound is left in place for five minutes and then withdrawn. Reference to the electric bougie is also made by several.

Urbantschitsch [21] reports further observations upon a series of old catarrhs of the middle ear treated by galvanism. Some cases which had not yielded to any other treatment were apparently helped, but in many, but slight if any improvement was noticed.

[17] Maryland Medical Journal, Sept., 1903.
[18] Arch. of Otol. v. xxxi, No. 1.
[19] Monatschr. f. Ohrenh., Sept., 1903.
[20] Ann. des mal de l'oreille, etc., Feb., 1903.
[21] Monatschr. f. Ohrenh. Nov., 1902.

LUMBAR PUNCTURE FOR TINNITUS.

Babinski [22] reports eight cases so treated, in all of which marked improvement of subjective noises and hearing was noticed. In every one of the cases the tinnitus disappeared following the first puncture, and the results seemed to be reasonably permanent. One case which was kept under observation three months showed no recurrence.

Chavasse and Mahu [23] in speaking of lumbar puncture, believe that it is of the greatest value as a means of diagnosing intra-cranial troubles of otitic origin, and that the operation is practically harmless. If, on examining the fluid after having used the centrifuge, it is found to contain either bacteria or polynuclear leukocytes, or both, we have a meningitis. If the liquid is clear and contains quantities of lymphocytes, we probably have a tubercular meningitis.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION. SECTION ON PRACTICE OF MEDICINE.

(Continued from No. 25, p. 682.)

THIRD DAY. THURSDAY, JUNE 9.

SYMPOSIUM ON GALL-BLADDER DISEASES.

ETIOLOGY OF CHOLECYSTITIS AND CHOLELITHIASIS.

DR. WALTER L. BIERRING, of Iowa City, Ia., in his consideration of this subject said it was necessary to recognize that this viscus constituted one of the most vulnerable points for infection in the abdominal cavity, and in this respect was analogous to the Fallopian tube and the appendix, in which latter structure, infective agents were more or less constantly present in its lumen normally, while the gall bladder was generally free of micro-organisms; furthermore, infection of the gall bladder concerned itself more with the contents than the walls, the sterile bile becoming a culture medium for micro-organisms, while in appendix infections the coats were more prominently involved. The liability of gall-bladder disease was due mainly to its position, between the bacterial hordes of the intestine and the liver, exerting a very important rôle in the immunity possessed by the liver. Results of experimental infection demonstrated that a great many pathogenic micro-organisms flourish in the bile quite vigorously, though at one time the bile was supposed to act as a bactericide. Clinical and experimental observation showed that infection occurred in two ways: (1) By way of the blood, descending or hematogenous, (2) ascending or by way of the common bile duct. The effects of stoppage of the bile by gallstones or foreign bodies favors the growth of bacteria. The etiologic relation of cholecystitis and cholelithiasis has been found to be so close that that which pertains to the etiology of gallstones would be contributory and in most instances causative of cholecystitis. Cholelithiasis, he said, was very rare in early adult life, occurring more frequently after the age of forty. It was far more frequent in women than men, — child bearing, tight lacing, sedentary habits and constipation probably explaining this fact. From the accumulated experimental and clinical knowledge of the pathogenesis of gallstones, Dr. Bierring made

[22] Soc. méd. des hôpitaux de Paris, Apr. 24, 1903.
[23] Rev. heb. de laryng., d'otol., etc., Oct. 24, 1903.

the deduction that while the essential cause usually is cholecystitis, there were other factors at work besides infections, and special consideration should be given infectious diseases and states of altered metabolism which promote a change in the quality of the bile chemically, so as to constitute an irritant. Cholecystitis and cholelithiasis he believed to be secondary affections, and, if it were possible to eliminate such influences as age, improper wearing apparel, lethargic habits, constipation, gastric and intestinal catarrhal disorders, cholelithiasis would soon become a very rare disease.

DISEASES OF THE GALL BLADDER AND BILE DUCTS, IN RELATION TO DISEASES OF THE GASTRO-INTESTINAL TRACT.

Dr. Bertram W. Sippy, of Chicago, read this paper, and said that owing to the close anatomical proximity of the gall bladder and bile ducts to certain portions of the gastro-intestinal tract, disease of one of these structures may be readily transmitted to the other. Disorders of the stomach and intestine arising from disease of the gall bladder and bile ducts he divided into those of nervous or reflex origin, and those due to a direct extension of the anatomical diseases. Of the nervous disorders he said the functional activity of the stomach and intestine was influenced in a reflex way by disease of the biliary tracts, but no serious permanent effect was likely to result; while the direct extension of anatomic disease from the bile tracts to the stomach and intestine might be fraught with most serious consequences. From personal observation and study he has found that pyloric and duodenal obstruction from cholecystitis was serious when co-existent with pyloric stenosis. In reference to the management of duodenal and pyloric obstruction arising during or immediately following an attack of cholecystitis, his advice is not to operate until the patency of the pylorus is tested by rest and rectal feeding, except in those cases in which immediate operation is necessary, on account of the seriousness of the local inflammation, when operation should be directed to relieving local inflammation. Gastro-enterostomy should rarely be performed at the same time, except when is there evidence of old pyloric or duodenal obstruction. If the obstruction does not diminish with rest and rectal feeding, operation for cholecystitis may be combined with gastro-enterostomy if the condition of the patient permits. He has found great difficulty in differentiating ulcer of the stomach from gallstones at times. Gallstones usually pass from the gastro-intestinal tract with the feces, but a stone may occlude the lumen of the bowel sometimes, with fatal results. The most common seat of obstruction was near the ileo-cecal valve. He has found it of great value in diagnosis to remember that there is not a single symptom in gastric or duodenal ulcer that might not be present in cholelithiasis and *vice versa*. In conclusion he said that in the majority of cases a fairly accurate differential diagnosis could be made between the two conditions by carefully studying the whole clinical picture. Mistakes might occur when evidence was faulty or incompletely elicited, or when too much stress was laid upon some individual symptom.

DIAGNOSIS OF CHOLECYSTITIS AND CHOLELITHIASIS.

Dr. Parker Syms, of New York City, enumerated the important diseases of the gall passages. They were: (1) inflammatory disease of the gall bladder and gall ducts with or without stone; (2) gallstones in the gall bladder and gall ducts with or without inflammation; (3) inflammatory condition of the region surrounding the gall passages causing obstruction by pressure or distortion; (4) neoplasm of the gall passages, benign and malignant, with or without gallstones and with or without inflammatory disease. The prominent symptoms produced by gall-passage disease were: pain, tenderness, fever and chills, vomiting, change of pulse rate, collapse, tumor, jaundice, urinary changes, blood changes, stools. The pain is colicky, occurring most often when the stomach is empty; tenderness was localized, he said, to the region involved, which is usually opposite the juncture of the ninth rib with its costal cartilage; fever was of an acute type, rapidly subsiding as it rose; vomiting was of a reflex character coming on with the pain and independent of nausea; pulse was accelerated and tension increased; collapse occurred in severe attacks; tumor might be felt below the free border of the ribs; jaundice might be present or absent, depending upon the amount of obstruction to the flow of bile into the intestine; urinary changes were of interest in determining the presence and degree of jaundice; blood changes also aided in determining the presence and degree of jaundice, and the amount of leucocytosis aided in determining the presence of suppuration; stools showed the presence or absence of bile; so far, x-ray examinations had been unsatisfactory. Bile passage disease should be distinguished from the following conditions: gastric ulcer, appendicitis, renal colic, pancreatitis, phlebitis portalis, angina pectoris, empyema, subphrenic abscess, malignant disease of the pylorus, duodenum, pancreas, liver, kidney, etc., all of which he described. For the purpose of aiding in a more accurate diagnosis and estimate of the conditions present, the author embodies a diagnosis chart of diseases of the gall bladder and ducts.

THE TREATMENT OF CHOLECYSTITIS AND CHOLELITHIASIS.

Dr. Lucius W. Hotchkiss, of New York City, called attention to the growing tendency to place diseases of the gall bladder and bile ducts within the category of surgical affections, thus establishing the foundation of rational treatment. This treatment he divides into two classes; first, the medical or palliative, and second, the surgical or radical and curative. He quotes the opinions of experimenters some of whom believe that gallstones may be dissolved by administering sodium glycocholate; or alkalis and bile salts with a rich diet. The treatment by olive oil has not fulfilled the hopes of its discoverer as a specific. Hence the *rationale* of the treatment which aims to relieve congestion, and increase the flow of bile, he states, is perfectly sound. In the treatment of the disease he believed the great point to be determined was the border line between balneological and surgical procedures, *i. e.*, when the former should cease and the latter be begun. He believed that as greater certainty in diagnosis was reached there would be less call for the more difficult and dangerous operations upon the common duct, and a decreasing number of cases requiring cholecystenterostomy. The danger in operation lay principally in delay. Choledochostomy, choledochectomy, choledo-enterostomy, he thought, were possible only in rare conditions, and operations upon the hepatic duct were still in their infancy. Reference shows, he states, that American surgery has played no unimportant part in the pioneer work of the operative treatment of gallstone disease, and in the later developments of important modifications in technic. Consideration of the treatment of certain cases showed that cases seen in the first mild attack quickly subside under medical treatment; cases seen

in subsequent mild attacks were ideal ones for cholecystectomy; cases with repeated severe attacks in which cholecystostomy was always justifiable and the operation of choice; cases which for a few days show evidence only of mild local infection, suddenly developing signs of peritonitis and sepsis which required early operation; cases of common duct obstruction by calculus, in which it was advisable to treat expectantly for a week or two. He says, in conclusion, that the treatment in these cases must ultimately be surgical, and it must be admitted that medical science had discovered no sure solvent for gallstones, or devised any means other than surgical for the drainage of the gall bladder and biliary ducts.

ERGOT IN GENERAL PRACTICE.

DR. ALFRED T. LIVINGSTON, of Jamestown, N. Y., aimed to demonstrate in his paper that inefficient tone of unstriated muscular fiber was a common and serious element of disease; that it was important to guard against, or to correct, such abnormal state of that tissue. His secondary object was to indicate a drug which would accomplish the work desired. The abnormal disturbance of blood distribution depended, he thought, upon a relaxed state of the muscular coat of the blood vessels. The location, degree and persistence of such vascular relaxation, together with the influence of irritants or etiological factors, determined a variety of diseases, most of which would not occur if there were a good degree of tone in all vascular walls. A relaxed state of unstriped fiber in the bowel and other hollow organs, produced disorders indicating a stimulating or toning of unstriped muscular fiber. He made the statement that only a small percentage of humanity had a good state of tone of all the unstriped fiber of the body, thus being more subject to disease. In treating his subject the author classified his subject under the head of (1)Disorders of blood vessels, speaking first of inflammation of the arteries, veins and lymphatics for which affection his prescription was rest for two to five months and daily injections of ergot. Septic inflammation of veins and lymphatics had repeatedly yielded to treatment. The serious and fatal elements of febrile diseases were treated in detail. He said the evidence afforded by the action of ergot in shock was that the condition was not so much a paralysis of vasomotor centers, as it was a tremendous disturbance of the equilibrium of the circulation; and the indication was, therefore, primarily, to contract these dilated and engorged vessels and again establish an active circulation; ergot was the agent that would do this. From all that he had said, it would be recognized that he regarded the toning of relaxed unstriped muscular fiber as important in a great variety of diseases, and of vital import in many instances. Ergot will do this, he asserted.

DR. J. O. STRANAHAN, of Rome, N. Y., spoke of the excellent use of ergot in the insane institutions of New York.

DR. HERMAN GRAD, of New York, reported the excellent results he had obtained from the use of ergot before, during and after surgical operations, in greatly relieving the nausea and vomiting which so often followed the administration of anesthetics.

DR. JAMES J. WALSH, of New York, referred to the cases in Dr. Wakefield's service in which ergot had been of great value. He referred to a certain relaxation of the blood vessels in the abdominal region and said that the general observers had claimed that two thirds of the blood of the body could be contained in the abdominal vessels. Therefore, in certain cases, by toning up the abdominal vessels, as by the administration of ergot, the circulation could be made better.

DR. ALEXANDER LAMBERT, of New York, said that last year there had been over 8,000 cases of alcoholism at Bellevue Hospital, and that while the death-rate in nine years had been about 3% in those patients with a wet brain condition, etc., he had been able to reduce the death-rate by ergot, 44%.

THE DIFFERENTIAL LEUCOCYTE COUNT AS AN AID TO THE DIAGNOSIS OF FEVERS.

DR. WILLIAM KRAUSS, of Memphis, Tenn., read this paper and presented the following conclusions: (1) It is not so much the absolute increased per cent of large lymphocytes which is diagnostic of malarial infection as the relative increase over the small lymphocytes. (2) In cases of malarial infection without much fever and without quinine history, the polynuclears are markedly diminished and the large lymphocytes very much increased in proportion. (3) In the absence of an adenopathy, possibly also of influenza and measles, the above finding is positive evidence of present or very recent malarial infection. (4) During the rise of a malarial fever or as a result of quinine therapy, the polynuclear leucocytes may reach 80%, but in that event the large lymphocytes exceed in number the small ones. (5) In malarial hemoglobinuria any of the various blood findings, characteristic of malarial fever, may be present in any stage, and there is no evidence now at hand to explain this. (6) Malarial and typhoid fevers can be more positively differentiated from fevers of sepsis, pneumonia, rheumatism, malignant tumors, etc., by the differential leucocyte count than by the hemocytometer, and it can be done on dried films, away from the bedside. (7) Malarial infection makes a strong impress upon the leucocytic relation, no matter what other disease it is associated with. (8) It is not safe to rule out typhoid fever when the malarial variation is found, but, as it calls for antimalarial medication, the therapeutic test may decide before a Widal would appear. (9) In a gradually developing fever, the absence of marked increase in large lymphocytes or polynuclears during the first week justifies a preliminary diagnosis of typhoid fever.

(To be continued.)

Recent Literature.

Treatise on Diseases of the Skin for the Use of Advanced Students and Practitioners. HENRY W. STELWAGON, M.D., Ph.D. Third Edition. W. B. Saunders, 1904.

It is but little more than a year since we had the pleasure of noticing the appearance of a second edition of Dr. Stelwagon's textbook. In the third edition, which appeared in January of this year, very few changes or additions naturally have been found necessary. Owing to the prominence of the x-ray and Finsen light treatments, as well as the high-frequency current, a reference has been made to these methods.

The Extra Pharmacopœia of Martindale and Westcott. pp. xxiv+809. Eleventh Edition. London: H. K. Lewis. 1904.

This small book in its eleventh edition has been brought up to date. Many drugs have been omitted from consideration, allowing the addition of three hundred new remedies.

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CONSUMPTION IN NEW ENGLAND.

The American Statistical Association has recently published a paper by Dr. S. W. Abbott, secretary of the Massachusetts State Board of Health, on "The Decrease of Consumption in New England." The paper is largely statistical, and embodies facts of the most striking interest to students of the problem of tuberculosis. The New England states have for years had the advantage of a fairly accurate system of vital statistics, extending for different periods in the several states, but for the last twelve years existing in all. The occupations and social conditions of the people in these states vary widely, as well as the population, and the rate of its increase during the past fifty years. Vermont has been the most stationary as regards population, whereas the manufacturing states, of which Rhode Island and Massachusetts are the examples, have been more decidedly affected by immigration than the others during the last ten years. Italians, Scandinavians, Germans, Southern Russians and Canadians have been large factors in the increase of population. These facts are of interest for future studies of problems of tuberculosis, but as yet the effect of this immigration upon the prevalence of the disease is not to be determined.

Dr. Abbott sets himself the following questions to consider: The prevalence of consumption at the present time; its decrease in the last years of the nineteenth century; the comparative mortality of the sexes from consumption and the relative decrease in each sex; the comparative mortality from consumption at the different ages of life and the relative decrease at each age. Some of these questions it is possible to answer satisfactorily, whereas others can be estimated merely. Regarding the per cent of mortality from consumption in New England, complete figures are available for the years 1892 to 1901 inclusive. This includes a total of 99,002 deaths in these ten years, or an annual mortality of 18.81 per ten thousand living inhabitants. Of the various states the mean death-rate has been greatest in Massachusetts, followed by Rhode Island. The reason for this is to be found in density of population, as Dr. Abbott has previously shown in a consideration of the geographical distribution of the causes of death in Massachusetts. He finds that, the mortality of densely settled districts being taken as one thousand, districts of medium density show 810, and thinly settled district, 727. It was also shown that deaths from consumption diminished steadily from the seacoast districts toward the western portion of the state. In estimating the diminution in the death-rate from the disease, the extraordinary fact is disclosed that deaths have declined in Massachusetts from 3901 per million inhabitants in 1851 to 1595 in 1902. The death-rate from the disease in 1902 constituted but 37.3% of that prevailing in 1853. A comparison of these figures with those in England for a similar period shows essentially the same conditions, although the entire mortality from the disease was less than in Massachusetts. If such figures are to be regarded as an augury for the future, it is clear that tuberculosis is somewhat rapidly tending toward extinction. Dr. Hillier, in a recent paper, has predicted its extinction in England and Prussia within about a generation. Dr. Newsholme is quoted as saying that there is more hope for the almost complete extermination of tuberculosis than of any of the acute infectious diseases, with the possible exception of typhus and smallpox. Von Behring has likewise expressed a similar opinion.

Regarding the third proposition, as to comparative mortality from consumption in the two sexes, it appears that in 1851 in Massachusetts the mortality among females was much greater than among males, being 45% greater. The tendency has been toward a steady decline in the death-rate in both sexes, as already pointed out, but a much more rapid decline among females than among males. In 1902 the conditions were reversed, and the male death-rate had become 12% greater than the female. Finally, the matter of the age incidence of consumption also shows interesting figures, with general improvement all along the line, but particularly in the later periods of life. Dr. Abbott's general conclusions

are that the death-rate from consumption in New England at the present time is somewhat less than twenty per ten thousand living inhabitants, that the death-rate has diminished largely in all the New England states, in some as much as 50% in the half century, and that this decrease is going on now more rapidly than in earlier years. The death-rate of women has particularly decreased, and, as just stated, the incidence of the disease has decreased in greater proportion in the old than in the young.

Such statistical papers as this to which we have called attention do more than a vast amount of theoretical discussion in bringing home to the people at large the actual facts regarding tuberculosis. Dr. Abbott shows conclusively by figures, the general accuracy of which cannot be doubted, that tuberculosis has diminished markedly in the last fifty years, and that its ultimate extinction is by no means chimerical. The whole agitation regarding the subject, and particularly the attempt to educate the masses, is doing much toward a completion of the campaign so satisfactorily begun. We are glad in this connection to call attention to a communication from Dr. Knopf, which appears in another column of this issue, on "The National Association for the Study and Prevention of Tuberculosis." After many vicissitudes, it appears that a strictly representative national association has been formed, which will do much toward concentrating effort and directing investigation toward the most profitable ends. The gentlemen composing the association as its official representatives are all associated in the professional, and to a less degree, in the popular mind with the problems of tuberculosis. We cannot question, therefore, that this association will fulfil its onerous function in the most satisfactory way possible.

A DEPARTURE IN THE TRAINING OF NURSES.

AT the graduating exercises of the Nurses' Training School of the Boston Children's Hospital, recently held, certain suggestions regarding the training of nurses were presented, which are of interest not only to the nurses themselves but also to the profession at large. Dr. R. W. Lovett spoke for the medical staff, and pointed out certain projected changes in the training of nurses at that hospital to which we wish to call attention. He alluded to the fact that the ordinary training school for nurses is usually an appendage to a hospital rather than an independent educational institution, and that therein the schools which educate women for other professions are very far in advance of the training schools for nurses. Dr. Lovett then proceeded to sketch the history of the training school at the Children's Hospital, and the previous development which it had from time to time undergone.

Among these changes were the lengthening of the course to three years, a reduction in the daily duty from twelve to eight hours per day, and a discontinuance of the payment of nurses on the ground that the instruction obtained was equivalent to their work. He showed how the whole question of nursing has become elaborated with the development of medicine, and brought out the neglect of the proper systematic training in fundamental branches. The announcement was then made, and it is to this we desire to call particular attention, that an arrangement has been effected by means of which Simmons College, devoted to the training of women in practical technical work, is to co-operate with the hospital in the early training of the nurses. Hereafter, instruction during a period of four months is to be given each nurse in the branches of anatomy, physiology, chemistry, bacteriology and sanitation, this instruction to be wholly at Simmons College. Thereafter the more practical side of nursing will be taken up much as heretofore in the hospital wards. In spite of the somewhat brief period of preliminary instruction, it was pointed out that the lengthening of the probation period is a step of importance, that the training given in a properly equipped institution for fundamental branches will be of great value in inculcating proper habits of observation, and that ultimately it may be possible to extend this preliminary course. Professor Sedgwick also spoke on the subject, and in his capacity as a member of the corporation of Simmons College promised the hearty co-operation of that institution in the scheme which has been elaborated.

So far as we have followed the somewhat extraordinary development of training schools for nurses during the past ten years, this step is one of the most fundamentally important which has been suggested. The idea of improved preliminary instruction, the suggestion that the nurses should pay rather than be paid for their services, and the general elevation of the calling to a profession, have naturally been discussed from many points of view. So far as we know, however, an actual plan, such as this suggested for the Children's Hospital, has hitherto not been

put into practice, although various steps in that direction have been taken. The experiment on the face of it would certainly seem worth trying, and we have no doubt that it will prove a success in augmenting the education of the nurses on various theoretical matters in which they are supposed at the present time to be versed but often are not.

We have from time to time commented on the development of nursing, and have expressed a certain skepticism as to the ultimate product of the increased educational facilities. We certainly can have no objection to education of any sort, provided only it does not take the place of that for which the nurse alone exists — the care of the sick. We must not lose the nurse in developing the profession of nursing.

THE FOURTH OF JULY.

As our national holiday approaches, speculation as to the effect of recently attempted legislation and much popular discussion on the subject of the celebration of the day is justified. The attempt to abolish noise is evidently quite impossible and quite without the bounds of legislative enactment. We are inclined to think, however, that the widespread feeling on the subject will have a certain influence in restraining the excesses to which we have been accustomed. The plea which is annually put forth that some restraint on the noise-making propensity be enforced in the neighborhood of hospitals cannot be too strongly emphasized. The positive discomfort, to put it in the mildest way, which bedridden and debilitated patients must suffer ought, at least, to have a deterrent influence even upon the young. In this connection it is a trifle discouraging to observe in the daily press that a member of our city government has introduced an order into one of the legislative branches seeking permission to begin the noise-making at midnight on the third of July, to continue unabated for twenty-four hours. The matter of tetanus no doubt this year, as heretofore, will receive a large amount of comment and protest after the fact. There seems however some evidence to show that a systematic attempt to keep certain danger dealing weapons and explosives out of the hands of the public will be forthcoming

MEDICAL NOTES.

Post-Graduate Teaching in Germany. — It is announced that hereafter towns in Germany having hospitals of reasonable size may create institutions for post-graduate clinical teaching. The nearest universities will supply the members of the teaching staff, in return for which the university concerned is to pay the cost of maintenance of certain patients sent to its clinics. The object of this system is to utilize the clinical material of large cities which do not themselves support a university.

Radiology at the University of Vienna. — It is announced that the science of radiology has been officially recognized in the faculty of medicine in the University of Vienna by the appointment of several men as docents in the subject.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 29, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 45, scarlatina 14, typhoid fever 15, measles 41, smallpox 0.

William Osler, LL.D. — Prof. William Osler of Johns Hopkins University received the honorary degree of LL.D., at the annual commencement of Harvard University, held June 29.

Harvard Medical Alumni Association. — The annual meeting of the Harvard Medical Alumni Association was held at the Harvard Medical School, June 28, with an attendance of about fifty members. Dr. D. W. Cheever addressed the association on the subject of the Boston Medical Library. Councillors were elected as follows: Dr. C. M. Green, Boston; Dr. Elliott P. Joslin, Boston; Dr. William B. Coley, New York.

NEW YORK.

Seaside Hospital of St. John's Guild. — The Seaside Hospital of St. John's Guild at New York, Staten Island, was opened for the season on June 20, and it is stated that the largest number of patients ever received on the opening day was admitted. The floating hospital of the Guild has not yet commenced its trips, but a nurse and orderly are in attendance on the boat conveying mothers and children to the Seaside Hospital.

New York Water Supply. — Urging that means be devised to test public sentiment on the question of asking Governor Odell to call a special session of the legislature to pass a water supply bill for New York City, Mayor McClellan recently sent a long communication to the Board of Aldermen, and by the board it was referred to the committee on water supply with the understanding that a public hearing

should be held on the matter as soon as possible. In this message, which is an intelligent discussion of the whole subject, the Mayor states that in signing the Smith bill (which prohibits the city from obtaining any water supply from Dutchess County, on the east bank of the Hudson), the Governor excluded New York from utilizing the most valuable immediate source of supply. He expresses some doubt, however, as to whether the same legislature would be willing to give the city relief. "As we stand now," continues the message, "the city is dependent to a great extent upon the continuance of an abundant water supply from natural sources. Should this supply of nature at any time undergo any considerable diminution for two successive years, the city would suffer a calamity almost indescribable. . . . The importance of a reservoir connection with streams in Dutchess County as a part of the chain of our supply system lies in the fact that such connection would not only furnish a large quantity of wholesome water, but it could be used, by extension, to draw from streams beyond that county which, on account of the quantity and the quality of the water obtainable there, would not justify the expense of an independent aqueduct. These waters, it is asserted by competent authorities, would be worthless to the city unless they could be commingled with the waters of Dutchess County. . . . The prosperity of the city, as well as the health of its inhabitants, is largely dependent upon an abundant and wholesome water supply, and I would suggest, therefore, that this matter should receive your most earnest consideration."

Obituary.

NATHAN SMITH DAVIS, M.D., LL.D.

DR. NATHAN SMITH DAVIS of Chicago died in that city June 16 at the age of eighty-seven years. He was born in New York state and received his medical education at Fairfield in that state. His practice began in Vienna, N. Y., and was continued in Binghamton, and later in New York City. In 1849 he removed to Chicago, accepting the chair of physiology and pathology at the Rush Medical College. Dr. Davis' name is chiefly identified with the foundation of the American Medical Association as far back as the year 1845, when he brought about a convention for the discussion of medical education, from which the American Association has grown to its present proportions. He was also prominent in the foundation of various scientific institutions in Chicago, and at one time had a national reputation in his profession. He was at various times the editor of several medical journals, and in 1883 he became editor of the *Journal of the American Medical Association*. During the later portion of his life a certain tendency to controversy, which had stood him in good stead earlier in his professional career, became a bar to his continued recognition. He will, nevertheless, be remembered as a man of strong personality and high ideals as well as a physician of great merit.

Correspondence.

THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

NEW YORK, June 21, 1904.

MR. EDITOR: I am in receipt of a number of inquiries from all over the United States and from abroad concerning the outcome of the various meetings which have taken place in Baltimore, Philadelphia, New York and Atlantic City in regard to the formation of a national tuberculosis association. Although your esteemed paper brought out a short paragraph concerning the Atlantic City meeting, it must have escaped the notice of many of my correspondents, and I ask you, in the interest of the cause, to kindly publish the following in the next issue of the JOURNAL.

An American national organization for the study and prevention of tuberculosis has been formed at last. The constitution and by-laws of this new society were adopted on Monday, June 6, at Atlantic City. The objects of the organization, as stated in its constitution, are as follows: (*a*) The study of tuberculosis in all its forms and relations; (*b*) the dissemination of knowledge about the causes, treatment and prevention of tuberculosis; (*c*) the encouragement of the prevention and scientific treatment of tuberculosis.

The following are the officers of this association: Dr. Edward L. Trudeau of Saranac Lake, N. Y., is the first president; Dr. William Osler of Baltimore and Dr. Hermann M. Biggs of New York are its vice-presidents; Dr. George M. Sternberg of Washington, D. C., late surgeon-general, is its treasurer; and its secretary is Dr. Henry Barton Jacobs of Baltimore. The board of directors, in addition to the officers above named, consists of Dr. Norman Bridge of California; Dr. S. E. Solly of Colorado; Dr. John P. C. Foster of Connecticut; Dr. George M. Sternberg of Washington, D. C.; Dr. Arnold C. Klebs and Dr. Robert H. Babcock of Illinois; Dr. J. N. Hurty of Indiana; Dr. William H. Welch, Dr. William Osler, Dr. H. B. Jacobs and Dr. John S. Fulton of Maryland; Dr. Henry M. Bracken of Minnesota; Dr. William Porter of Missouri; Dr. Edward O. Otis and Dr. Vincent Y. Bowditch of Massachusetts; Dr. Frederick L. Hoffman of New Jersey; Dr. Hermann M. Biggs, Dr. S. A. Knopf, Dr. Edward L. Trudeau and Mr. Edward T. Devine of New York; Dr. Charles L. Minor of North Carolina; Dr. Charles O. Probst of Ohio; Dr. Lawrence F. Flick, Dr. Mazyk P. Ravenel, Dr. H. S. Anders and Dr. Leonard Pearson of Pennsylvania; Dr. M. M. Smith of Texas; Dr. George E. Bushnell of the United States Army Hospital, and Surgeon-General Walter Wyman of the United States Marine Hospital.

Its membership is to consist of three classes:

(*a*) Members — those who are elected by the board of directors and who pay annual membership dues of $5. (*b*) Life members — those who pay $200 and are already members of the association. (*c*) Honorary members — persons distinguished for original researches relating to tuberculosis, eminent as sanitarians, or as philanthropists who have given material aid in the study and prevention of tuberculosis.

The government of the association, the planning of work, the arrangement for meetings and congresses, and everything that appertains to legislation and direction are to be in the hands of the board of directors, and committees are to have the power to execute only what is directed by the board.

The board of directors is empowered, however, to appoint an executive committee of seven members to which is entrusted the executive work of the association. This committee, chosen at the meeting in Atlantic City, consists of Dr. Edward L. Trudeau, Dr. Henry Barton Jacobs, Dr. Edward O. Otis, Dr. Mazyk P. Ravenel, Dr. Arnold C. Klebs, Dr. John N. Hurty and Mr. Edward T. Devine.

The board of directors is empowered to appoint representatives in the International Committee on Tuberculosis. It was decided at the meeting of organization, that this representation was to be headed by Dr. William Osler, and his associates will be selected later. The board is authorized, also, to appoint such committees as may be necessary for scientific and educational work, and for the holding of meetings and congresses.

Drs. Osler, Trudeau, Biggs, Devine, Barrier, Huber, Knopf and others addressed the meeting on the scope of the work which was before the association. The addresses of the various speakers were received with enthusiastic applause, but the ovation given when Dr. Trudeau appeared on the platform surpassed anything the writer has ever been privileged to witness before. It was spontaneous, genuine, and lasted for minutes. It was a grand tribute from the vast assembly, not only to the pioneer of the sanatorium treatment in American, but to the grand qualities of Dr. Trudeau as a physician, scientist and humanitarian. Dr. J. M. Barrier of Delhi, La., in speaking of the fearful mortality from tuberculosis among the negroes, urged the new society to take up also the work of prevention of tuberculosis among the colored population of the United States.

Concerning the character of the new organization, I may be permitted to quote in conclusion the opinion of a layman, the editor of *Charities*, the organ of the New York Charity Organization Society:

"There are two conspicuous and equally gratifying features of this national movement. It is thoroughly representative of the leaders of the medical profession; and at the same time there are ample evidences of their determination to make the association of direct practical value in legislation, in the education of the public, and in bringing about a co-ordination of philanthropic, medical and educational agencies for the conquest of the great scourge.

"While the scope of the association has not been officially outlined, it is evident from the stirring addresses made on the evening of the first meeting, that it will work directly for the better education of the public as to the means by which tuberculosis is communicated; for the erection of hospitals and sanatoria; for the adoption by local boards of health of such measures as have been so effective in reducing the death-rate from the disease in New York City; for the formation of local committees and associations in various communities, and for the intelligent co-operation of state and municipal authorities, private, voluntary agencies, and the medical profession.

"The question as to whether a special journal shall be established was left over for later consideration; but either through a special periodical or through the use of the medical or the lay press, the association will aim to bring about a practical and beneficial interchange of experiences, and a more intimate knowledge on the part of those who are at work in any community of the measures which have been found effective elsewhere. The executive committee was empowered to select an executive secretary, who will probably be a layman, and as soon as the condition of the association's treasury warrants it, a determined and aggressive campaign will be opened.

"It will be a source of pride and gratification, not only to physicians, but to all who have taken a sympathetic interest in the warfare against consumption that there is now a national body to which local associations and committees, hospitals and sanatoria, legislatures and local municipal administrations may turn with confidence for the last word on any disputed subjects, and for encouragement and sympathy for all good work on lines which experience has approved as promising of good results."

The majority of the vast audience present at the Atlantic City meeting were enrolled as members of the new organization.

S. A. Knopf, M.D.

RECORD OF MORTALITY
For the Week ending Saturday, June 18, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Cerebro-Spinal Meningitis.	Typhoid Fever.
New York	3,908,644	1,669	422	21.48	9.63	3.00	3.17	.42
Chicago	2,021,086	380	84	—	—	—	—	—
Philadelphia	1,407,968	388	129	33.68	7.63	1.05	—	1.84
St. Louis	633,696	—	—	—	—	—	—	—
Baltimore	542,229	175	51	29.71	6.28	2.28	.57	.57
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	122	—	31.15	9.00	2.45	—	9.00
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	335,900	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	49	10	30.60	4.08	2.04	2.04	—
Boston	617,950	134	32	25.37	13.43	2.98	1.49	—
Worcester	136,925	37	11	8.10	—	—	2.70	—
Fall River	119,349	25	11	40.00	16.00	—	—	—
Lowell	104,402	25	12	8.00	28.00	—	—	—
Cambridge	100,998	17	4	35.29	5.88	—	5.88	—
Lynn	73,875	19	4	21.05	—	5.26	—	—
Lawrence	72,348	16	1	37.50	12.50	—	—	—
Springfield	72,020	18	3	22.22	5.55	5.55	5.55	5.55
Somerville	70,413	—	—	—	—	—	—	—
New Bedford	68,863	13	3	7.70	—	—	—	—
Holyoke	50,538	11	4	18.18	—	—	—	—
Brockton	46,601	9	1	—	—	—	—	—
Newton	39,310	5	1	20.00	20.00	—	—	—
Haverhill	39,061	8	—	25.00	—	—	—	—
Malden	37,205	7	1	28.60	—	—	—	—
Salem	37,188	13	7	15.40	—	—	—	—
Chelsea	36,499	13	3	15.40	7.70	—	—	7.70
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	11	4	18.18	9.09	—	—	—
Everett	30,209	1	—	100.00	—	—	—	—
North Adams	29,201	4	1	—	—	—	—	—
Quincy	26,798	4	3	—	—	—	—	—
Gloucester	26,121	3	—	—	—	—	—	—
Waltham	25,797	4	—	—	25.00	—	—	—
Brookline	23,576	—	—	—	—	—	—	—
Pittsfield	22,870	9	0	22.22	—	—	—	—
Medford	21,956	4	—	50.00	25.00	—	—	—
Chicopee	21,893	1	1	—	—	—	—	—
Northampton	20,314	3	1	33.33	—	—	—	—
Beverly	15,907	2	1	50.00	50.00	—	50.00	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	5	2	20.00	—	—	—	20.00
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	1	—	—	—	—	—	—
Hyde Park	14,500	1	1	—	—	—	—	—
Newburyport	14,478	6	1	—	—	—	—	—
Woburn	14,315	—	—	—	—	—	—	—
Melrose	13,819	—	—	—	—	—	—	—
Westfield	13,809	4	—	100.00	—	—	25.00	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	1	1	—	25.00	—	—	—
Revere	13,609	0	—	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	13,394	2	—	—	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	1	0	—	—	—	—	—
Weymouth	11,350	2	0	—	—	—	—	—
Plymouth	11,189	1	—	—	—	—	—	—

Deaths reported, 2,843; under five years of age, 726; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 687; acute lung diseases 254, consumption 317, scarlet fever 26, whooping cough 10, cerebrospinal meningitis 61, smallpox 2, erysipelas 11, puerperal fever 10, measles 28, typhoid fever 29, diarrheal diseases 124, diphtheria and croup 68.

From whooping cough, New York 3, Philadelphia 4, Pittsburg, Worcester and Lawrence 1 each. From smallpox, Philadelphia and Baltimore 1 each. From cerebrospinal meningitis, New York 53, Baltimore 1, Providence 1, Boston 2, Worcester, Cambridge, Beverly and Westfield 1 each. From typhoid fever, New York 7, Philadelphia 7, Baltimore 1, Pittsburg 11, Springfield, Salem and Clinton 1 each. From erysipelas, New York 4, Philadelphia 1, Baltimore 1, Pittsburg 2, Providence 1, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending June 4, the death-rate was 14.6. Deaths reported 4,277; acute diseases of the respiratory organs (London) 73, whooping cough 125, diphtheria 40, measles 217, smallpox 2, scarlet fever 30.

The death-rate ranged from 5.5 in Kings Norton to 34.9 in Wigan; London 13.2, West Ham 13.2, Brighton 14.9, Southampton 13.4, Plymouth 12.3, Bristol 12.9, Leicester 12.3, Nottingham 12.4, Birkenhead 17.3, Liverpool 17.9, Bolton 15.1, Manchester 17.7, Salford 17.8, Bradford 14.4, Leeds 16.3, Hull 13.8, Sheffield 14.2, Cardiff 15.7, Rhondda 16.2, Merthyr Tydfil 15.1, Hanley 16.3.

METEOROLOGICAL RECORD.

For the week ending June 18, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 12	30.02	58	62	53	65	70	68	N	E	5	3	C.	C.	0
M. 13	30.16	54	58	50	63	62	62	N E	S	12	8	O.	C.	0
T. 14	30.07	59	68	50	54	67	60	S	S	7	10	C.	C.	0
W. 15	29.97	61	73	49	55	76	66	S W	S	9	12	C.	C.	0
T. 16	29.91	69	80	58	76	74	75	S W	N E	10	9	O.	O.	.07
F. 17	29.96	64	69	60	53	56	54	N E	S	12	10	O.	C.	0
S. 18	29.82	70	82	58	60	56	58	W	W	13	7	F.	F.	0
☞	29.99		70	54			63							.07

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 25, 1904.

A. W. BALCH, assistant surgeon. Ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

I. W. KITE, surgeon. When discharged from treatment at the naval hospital, Pensacola, Fla., ordered home and granted sick leave for two months.

C. BIDDLE, surgeon. Ordered to the "Wisconsin" for duty as fleet surgeon.

J. R. DYKES, assistant surgeon. Ordered to the "Rainbow."

W. W. VERNER, assistant surgeon. Ordered to the "Wisconsin."

C. M. OMAN, assistant surgeon. Detached from the naval station Cavite, and ordered to the "Frolic."

J. P. DEBRULER, F. W. S. DEAN, assistant surgeons. Ordered to the naval station, Olongopo, P. I.

A. J. GEIGER, assistant surgeon. Ordered to the naval hospital, Yokohama, Japan.

W. H. RENNIE, W. S. HOEN, C. C. GRIEVE, assistant surgeons. Ordered to the naval station, Cavite, P. I.

E. T. MORSE, pharmacist. Ordered to the naval station, Cavite, P. I.

R. O. MARCOUR, assistant surgeon. Detached from the "Hancock" and ordered home, and granted leave for three months, and resignation to be accepted September 27, 1904.

W. A. ANGWIN, assistant surgeon. Ordered to the naval hospital, Mare Island, Cal.

EXAMINATION FOR ARMY MEDICAL SERVICE.

THE examination of applicants for commission in the Medical Corps of the Army will be materially modified after July 1, 1904, when the amended regulations governing the matter will go into effect. Immediate appointment of applicants after successful physical and professional examination — the latter embracing all subjects of a medical education — will be discontinued; thereafter applicants will be subjected to a preliminary examination and a final or qualifying examination, with a course of instruction at the Army Medical School in Washington intervening.

The preliminary examination will consist of a rigid inquiry into the physical qualifications of applicants and written examination in the following subjects: Mathematics (arithmetic, algebra and plane geometry); Geography; History (especially of the United States); Latin grammar and reading of easy Latin prose; English grammar, orthography, composition; Anatomy; Physiology; Chemistry and Physics; Materia Medica and Therapeutics; Normal Histology. The subjects in general education above mentioned are an essential part of the examination, and cannot under any circumstances be waived.

The course of instruction at the Army Medical School will consist of lectures and practical work in subjects peculiarly appropriate to the duties which a medical officer is called upon to perform. While at this school, the students will be held under military discipline, and character, habits and general deportment closely observed.

The final or qualifying examination will be held at the close of the school term, and will comprise the subjects taught in the school together with the following professional subjects not included in the preliminary examination: Surgery; Practice of Medicine; Diseases of Women and Children; Obstetrics; Hygiene; Bacteriology and Pathology. General aptitude will be marked from observation during the school term. A general average of 80 per cent in this examination will be required as qualifying for appointment, and candidates attaining the highest percentages will be selected for commission to the extent of the existing vacancies in the Medical Department. Candidates who attain the requisite general average who fail to receive commissions will be given certificates of graduation at the school, and will be preferred for appointment as medical officers of volunteers or for employment as contract surgeons; they will also be given opportunity to take the qualifying examination with the next succeeding class.

Admission to the preliminary examination can be had only upon invitation from the Surgeon General of the Army, issued after formal application to the Secretary of War for permission to appear for examination. No applicant whose age exceeds thirty years will be permitted to take the examination, and the authorities at the War Department desire it distinctly understood that this limit of age will be rigidly adhered to. Hospital training and practical experience are essential requisites, and an applicant will be expected to present evidence of one year's hospital experience or its equivalent (two years) in practice.

The first preliminary examination, under the amended regulations above referred to, will be held about August 1, 1904; those desiring to enter the same should at once communicate with the Surgeon General of the Army, Washington, D. C., who will be pleased to furnish all possible information in regard thereto.

RECENT DEATHS.

JOHN H. DORN, M.D., a retired New York physician, died suddenly from cardiac disease, in London, on June 17. Dr. Dorn was born in Johnstown, N. Y., in 1842, and served for the first two years of the Civil War as a member of a New York regiment. He then began the study of medicine, and was graduated from the Albany Medical College in 1865. His professional life was spent in New York City, and from 1875 to 1896 he was a police surgeon. He retired from active practice about eight years ago, largely on account of his health.

THEODORE FRELINGHUYSEN BRECK, M.D., M.M.S.S., died in Springfield, June 25, 1904.

CHARLES EVERETT VAUGHAN, M.D., M.M.S.S., formerly of Cambridge, died in Santa Barbara, Cal., June 24, 1904, aged sixty-eight years.

BOOKS AND PAMPHLETS RECEIVED.

The Practical Medicine Series of Year Books. Comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly. Under the general editorial charge of Gustavus P. Head, M.D. Vol. V. Chicago: The Year Book Publishers. 1904.

Uric Acid. An Epitome of the Subject. By Alexander Haig, M.A., M.D., Oxon., F.R.C.P. Philadelphia: P. Blakiston's Son & Co. 1904.

Society Report, American Medical Association, Section on Medicine. By J. M. Anders.

The Clinical Study of Blood-Pressure. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetrical Practice, with a Summary of the Experimental and Clinical Facts Relating to the Blood-Pressure in Health and in Disease. By Theodore C. Janeway, M.D. Illustrated. New York and London: D. Appleton & Co. 1904.

Arteria Uterina Ovarica. The Utero-ovarian Artery or the Genital Vascular Circle. Anatomy and Physiology, with their Application in Diagnosis and Surgical Intervention. By Byron Robinson, B.S., M.D. Illustrated. Chicago: E. H. Colegrove. 1903.

A Plea for Justice to the Consumptive; A Reply to Recent Attempts to Discriminate against the Consumptive, not only on account of his Physical Infirmity, but also of his Alleged Mental and Moral Defects. By S. A. Knopf, M.D. Reprint.

Twenty-seventh Annual Report of the Managers of the Adams Nervine Asylum. 1904.

A Text-Book of Operative Surgery. Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Written for Students and Practitioners. By Warren Stone Bickham, Phar.M., M.D. Second Edition. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Epilepsy and Its Treatment. By William P. Spratling, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.